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Strawberry Crates for Ontario

Edwin Smith, in charge of Fruit Cold Storage and Transportation Investigations, Dominion Cold Storage Division, Grimsby, Ont.

THE satisfactory strawberry package is one which is attractive in itself and in the display of the fruit, one that will carry the fruit with the least possible injury, one that is

The Ontario 24 qt. crate which needs to be replaced by a more suitable package.

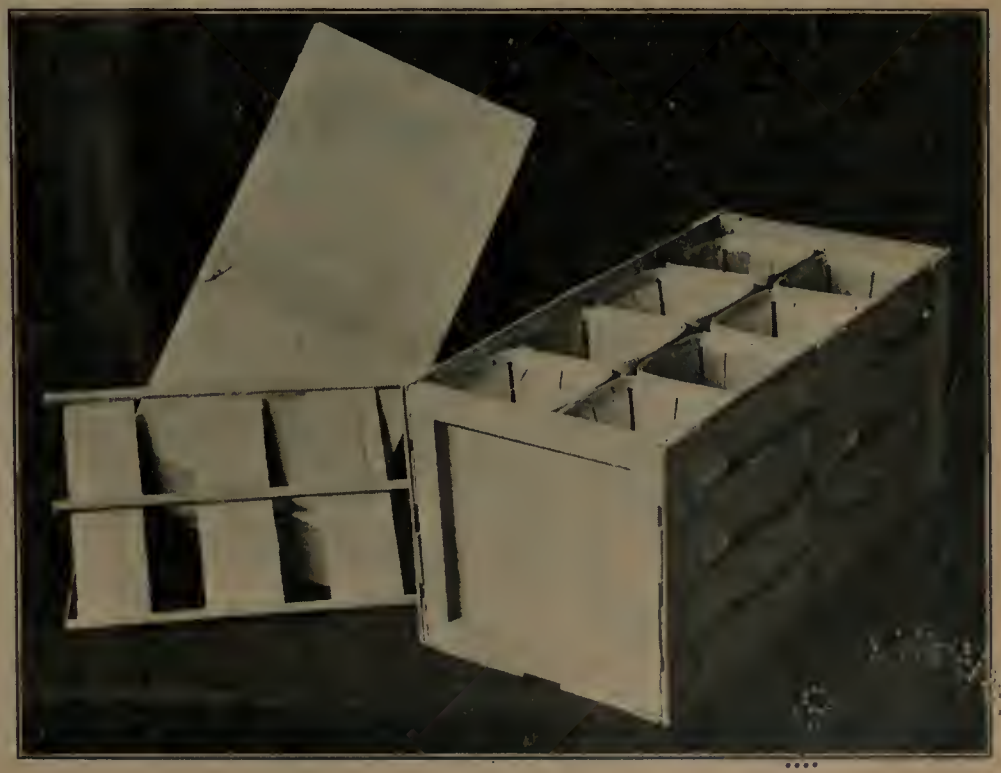
well ventilated and one that will sell so as to make greatest net returns to the growers. The 24-quart crate now used in many parts of Ontario fulfils none of these requirements.

The 24-quart Ontario crate is more or less fragile, often becoming broken in transit, and has an appearance that is not in keeping with the fruit which it is designed to carry. Of all the packages used to carry fruit, few, if any, can compare with this package in its rough, unattractive makeup. Aside from its ugly appearance, the package has a shakiness that gives the impression that it is ready to fall to pieces, and often it does so before reaching the consumer. It is an easy package to pilfer in less than carload shipments, and one which loads badly on account of its handles when shipped in car lots.

The greatest fault which is to be found with the package is its construction with regard to the safe carriage of the fruit. The dividers or separators are made so thin that the weight of the top tier of boxes falls on the berries beneath instead of on the edges of the underneath boxes, rendering the use of separators of very little benefit. Thus it is impossible to pack the boxes of the crate full without injury to the fruit during shipment. For this reason many growers have come to grief at the hands of the fruit inspector, for it is his business to see that all packages are properly filled. This places the strawberry grower in an awkward position, for if he fills his boxes full the berries are certain to be crushed, bringing claims from the consignee. On the other hand, if the grower fills the boxes so that they will not crush, they will not be full enough to conform with the requirements of the Fruit Marks Act and the fruit inspector will "haul him over the coals" for violation of the federal law.

In testing out the Ontario crate in our pre-cooling experiments during the past season, some very careful packing was done in the Ontario 24-quart crate by the Vineland Horticultural Experiment Station. Care was taken to fill the boxes as nearly even full as was justifiable for shipment without injury, and it was thoroughly believed that the packing was done in accordance with the Sales and Inspection Act. After hauling to the Pre-cooling Plant the crates were examined and all boxes were not more than two-thirds full Had the poor grower done the packing, he would have been accused of dishonesty—yet no other results could have followed with the use of this package.

In making net returns the Dominion Department's shipping tests have shown that the Ontario crate falls down



The American 24 qt. (dry measure) strawberry crate. This shows the crate, cups and the dividers (separators) which are placed between the layers. One divider is also placed on top before the cover is nailed on. The three strips running lengthwise rest on the edges of the boxes and protect the berries from mashing. Probably more berries are shipped in this type of berry box than in any other or perhaps all others.

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Cross section of the Western 24 pint Hallock crate. The separators rest on the sides of the crate instead of on the fruit.

badly in western markets when compared with other packages. In eastern markets a crate which will arrive in an attractive condition with boxes even full of sound berries will sell for a higher figure than a crate that has the appearance of having been pulled out of the scrap heap and whose fruit is crushed or is not filling the boxes.

Some growers who have previously used the 24-quart package have given it up, and this season a great many in the Niagara District are going to supplant it with a better article. In replacing the package the grower should look to the demands of his markets. The Ontario strawberry grower has markets demanding two distinct types of packages—the western and the eastern markets.

Western Markets.

The largest part of the strawberries used in the prairie provinces are shipped from Hood River, Oregon, and Spokane, Washington, in the 24-Full Pint Hallock Crate. This package is well adapted to long-distance shipments and admirably suits western marketing conditions. In tests made during the past season by the Department, the Pint Hallock crate proved superior to the 4-5-quart Hallock crate—especially since it always ships full where the deeper boxes shake down and appear slack, and netted greater returns. The 24 Pint Hallock crate from Hood River sells for from three dollars to four dollars wholesale in Winnipeg, and in the Department's test the pint crate averaged ten cents more than did the Ontario crate, although it required but about half the amount of berries for filling.

There is a large opening for Ontario strawberries in western markets, as Hood River and British Columbia berries have a slightly earlier season and are scarce in prairie markets when Ontarios are at their height. However, there is little use working for this trade unless the berries are packed so as to readily compete with those from Hood River, and to do this the 24-Pint Hallock crate must be used.

The 24-Pint Hallock crate is well shown in the illustration. Each box has its bottom raised so as to protect the top of the lower boxes when dividers are not used. In some cases dividers or separators are used, in which case they rest on shoulders or rabbits in the sides of the crate instead of on the underneath fruit. The cost of this crate ranges from fifteen to twenty-one cents.

It is general practice in western strawberry districts to pack the berries, taking them to a field packing shed for this operation. Berries of only one degree of ripeness are included, and the tops are faced off. This manner of packing is imperative since packing in the field by the pickers is certain to result in ripe berries getting in the boxes, which spells disaster to the whole package when shipped long distances.

Western United States Standard deep pint Hallock crate and boxes.

The Department's investigations in eastern markets would not warrant the use of the Hallock crate. Neither is it probable that the pint box will ever be used for Ontario berries in eastern markets. The deeper boxes carry satisfactorily for these shipments, and the consumer prefers the boxes they have been accustomed to—as a rule they look askance at the raised bottoms of the Hallock boxes and call them "false bottoms."

The 24-quart crate, after the American type, would be most satisfactory for these shipments. The 32-quart crate used in New Brunswick, or the 27-quart crate used somewhat in the Burlington district would also be recommended, **providing the separators have strips thick enough to prevent the weight of the upper boxes from mashing the berries underneath when the lower boxes are properly filled.** (Note the thickness of the strips on the separators of the American crate.) What is to be desired for eastern markets in the place of the present 24-quart Ontario crate is one that is strong, well ventilated, not easily pilfered, convenient for handling and one in which the boxes can be filled without mashing. Growers should decide upon having a better package at once and insist upon securing such a package by ordering early enough in the winter or spring so that the factories can meet their specifications—otherwise, the manufacturers will make no change in their package, and when the rush of the berry season is on all that will be found in stock will be the old, flimsy 24-quart crate, with the same veneer separators that are practically worthless as a protection to the berries in the bottom tiers.

Tomato Blight

D. H. Jones, O.A.C., Guelph, Ont.

It would appear from experiments and observations, conducted at Guelph and elsewhere, that the disease of tomatoes called "Tomato Blight" is not of a parasitic nature, either insect, fungous or bacterial. It resembles in many respects the Brown Rot of Solanaceae, particularly in the browning of the vascular bundes. So far as we can determine, it appears as a physiological trouble in the plant tissue, induced by some factor in the soil, possibly an injurious chemical reaction, which enters the plant system through the roots. It occurs in tomato plants grown under cover, and is liable to cause heavy losses. It has been found only to a very limited extent in the field.

Steaming the diseased soil has, in a limited number of experiments, proved beneficial. Whether treatment of the soil with chemicals will prove equally effective we cannot say from our own experience, as we have not tried it.

Thin your fruit from the first year of bearing, and you are more likely to have annual crops.

Cross sections of the Ontario 24 quart crate and the Western 24 pint Hallock crate. The pint crate sold for ten cents more than the quart crate in the Winnipeg market.

Orchard Fertilizers

A. W. Cook, Guelph, Ont.

FERTILIZERS must be understood —their nature, their contents, their time of application, and what results they will produce. These being understood by the grower, he can use them without fear as to the ultimate results, and each year will see him using them in larger quantities, thus making his manure go farther, which will not only enable him to produce more, but to produce at a reduction in cost. Fertilizers in the commercial sense are destined to play an increasing part in our fruit growing business, and the sooner we get acquainted, the sooner shall we be enabled to make our investment in the fruit growing industry pay us maximum returns at a minimum expense.

To use our various brands of manufactured and mineral fertilizers, economically and with profit, it is essential that the fruit grower be conversant with the nature of fertilizers, whether they are conductive to tree growth, or whether they shall be to produce fruit, or to aid the tree in assimiliating plant foods in larger quantities. He must know his soil, and what it is deficient in. He must understand the availability of the plant foods in the fertilizer, because to a large extent, it is only the available plant foods which are of actual value to the purchaser of fertilizers. Without an understanding of these principles, many will risk the possibility of wasting time and money, and experiencing a sad failure in the uses of commercial fertilizers.

Commercial fertilizers may be purchased in many forms. They may be had in special brands for special crops, or they can be purchased separately, each plant food by itself. We have advocates, who strongly uphold the use of fertilizers in both the prepared and the mineral, which are mixed by the user. As a general rule a saving from four to ten dollars can be saved by using fertilizers such as nitrate soda and acid phosphate, and mixing one's own fertilizers during the winter months. This can be best done by the use of a cement mixer. It can be mixed both by hand or power, and gives most satisfactory results in most instances. By using fertilizers in this way, the fruit grower is able to apply just what his land requires. He can supply greater quantities of nitrogen or phosphorus—and until the outbreak of the war—potash, by home mixing. It is not necessary to purchase so many special brands for special crops. The strongest advocates for "home mixing" are often those men who have used the factory prepared fertilizers, and in an experimental way tried the home mixing. The result is that they are still users of home-mixed fertilizers.

We are only concerned in four plant foods, because of early depletion from continuous cropping. These are generally known as nitrogen, potash, phosphorus, and calcium or lime. They are to be had in nitrate soda, sulphate ammonia, muriate and sulphate potash, acid phosphate and bone meal. Lime comes in the form of quick lime, carbonate of lime, and marl.

Nitrogen forces the growth and produces thriftiness; without its presence in our soils, our orchards would make but little growth. Large sized leaves of a dark green color indicate its presence in quantity.

Phosphorus aids the tree in assimilating other plant foods. It also assists in transporting the various foods to each section of the tree. Without its presence we have a poorly developed tree.

Potash produces fruit; hence the necessity of an abundant supply.

Calcium hardens and makes our trees sturdy, enabling them to bear the crops of fruit. It is of great importance to-day, because it breaks down the crude potash in our soils making it available for the trees. It is also essential for correcting acidity in sour soils.

A Lesson Learnt.

The use of commercial fertilizers without the addition of humus in some form has taught us that it is not conducive to the upkeep of our soil. Humus in such forms as barnyard manure and green cover crops helps us to obtain the most satisfactory results, because they give our soils a greater capacity for retaining water, which is so essential to all plant growth. They supply the necessary organic matter which goes to keep our soils in a porous condition so that we may obtain a good circulation of air within our soils. Without its addition in the practice of applying commercial fertilizers, our soils will soon cease to be profitable because of the depleted organic matter.

Systematic cultivation must invariably accompany the use of manures and fertilizers, but it must also be remembered that one cannot take the place of the other. Cultivation is essential, because it helps to make our fertilizers more available, by the thorough incorporating of them within the soil, hence making the plant's food within easy reach of its multitude of roots. It also assists the climatic conditions in breaking down some of the insoluble foods by bringing them in contact with the action of the sun, rain and winds.

Application of Fertilizers.

The time and manner of application requires more serious thought than has generally been given to these essential

A profitable crop of strawberries grown last season by Mr. S. B. Chute, Berwick, N.S. Mr. Chute is a firm believer in the benefits derived from the use of commercial fertilizers.

A FAITHFUL READER.

I have been a subscriber to The Canadian Horticulturist for 39 years and am much pleased with the magazine, as I find it very instructive.—R. McLagan, Stratford, Ont.

A display of vegetables, crated and open pack, made at the recent Lambton County Horticultural Exhibition, held in Sarnia, Ont.

points. In our apple orchards we have a considerable length of time after planting has taken place before the trees begin to make demands upon the soil, and because of this the tree, as a general rule, manages to make sufficient growth upon soils of general fertility without the addition of manure. The peach and such quick growing trees require fertilizing from the time of planting. However, an over-supply of nitrogen in the case of peaches is apt to prolong growth, with the result, that in some sections of Ontario there is twig freezing, because of the immature condition of the tree. In applying fertilizers or manure to young trees, it must be remembered to plough them under. If not, the growth of the roots is towards the surface, where their food is, and during times of drought they suffer because of an insufficient supply of moisture. Also when ploughing takes place a great many are severed because of their closeness to the surface of the soil.

Continuous cropping from year to year, exacting from the soil plant foods in the same quantity, places a handicap against the fruit grower. The farmer by a rotation of his crops can build up his soil, but the fruit trees' demand for certain foods is continuous, hence the necessity of an annual amount of manure and fertilizers to produce fruit.

With a slow maturing fruit, such as the apple, some of our fertilizers which become available slowly can be used. These are in the form of tankages, bone meal, etc., but with such fruits as the peach, we must invariably supply quick acting fertilizers, because they come into maturity earlier in the season. It has been determined by various experimenters that trees which have been properly fertilized, have been able to produce larger quantities of fruit in adverse seasons than the unfertilized ones. This is because the trees have been enabled, by the liberal use of plant foods, to make them stronger and less susceptible to adverse conditions which make other trees unprofitable in such seasons. Because of the usages of manures and fertilizers we find that such trees bear profitable crops for a greater length of time. All stone fruits require greater quantities of lime than our seeded fruits.

Experiment First.

It is well to experiment in one's own orchard to determine the nature and amount of fertilizers and manures which can be used most profitably. If one desires to use cover crops to supply the nitrogen and organic matter, he can best supply this in the clovers, and generally the use of mineral fertilizers will prove most satisfactory in such an experiment, because one can supply them in any given amounts as he deems it necessary. He can also have a better idea of each individual plant food, and see more clearly the results from the same. Plots can be laid off in a section where the soil is most uniform, also where the trees are as near alike as possible, both as to variety and size. On these plots one can use both manures and fertilizers together, also try each plant food by itself, or in conjunction with others. In the application of nitrate of soda, it should be applied in three applications, because it is immediately available. In supplying potash, wood ashes will have to supply the necessary potash, but be sure and apply only those which have not been bleached. Definite results cannot be determined in two years. An experiment of this nature helps one to get a broader view of fertilizers and their uses, and besides one learns at a small expense; neither does one run the risk of losing money by their careless use.

We hear a great deal about the scarcity of potash, and if the situation was as alarming as some would have us believe, we certainly would have cause to worry. A year has passed without its use to a large extent, and many of us have as large crops as ever. In the most of our soils we generally have from one to two per cent. of potash, this being equivalent to twenty thousand pounds per acre to a plough depth. However, as it is in a crude form, we must resort to other agents to break it down so that it may become available. This is done by the application of lime, along with barnyard manures, or cover crops. The lime hastens the decay of cover crops, which form aids to break up the crude potash. In applying lime to sandy lands, it should not be applied at more than one thousand two hundred pounds per acre in about every four years. Thoroughly air-slacked lime, or the ground lime stone rock are the safest forms to use, as they do not hasten the decay of our organic matter, as other forms of lime do. Lime should be applied during the fall or early winter, so as to obtain best results.

Fertilizers Have Paid

L. D. Robinson, Berwick, N.S.

Probably no farmer in Canada has used so much commercial fertilizer as S. B. Chute. He has demonstrated the fact that these chemical manures can take the place of stable manure in ordinary farm operations. His magnificent orchards have been built up almost wholly by their use. Only during the past few years has he been able to use any considerable quantity of stable manure. His main dependence has been, and still is, commercial fertilizers. He has tried them all—bone-meal, acid phosphate, basic slag, muriate and sulphate potash, nitrate of soda, sulphate of ammonia, fish scrap, and others. He believes in using liberal quantities of these manures. For the present he has almost discontinued the use of potash, in the belief that his soil is not in need of that element.

Nitrogen is supplied by using nitrate of soda at the rate of 100—200 lbs. yearly per acre, about the time when the buds are bursting. Phosphoric acid is supplied either in the form of acid phosphate at the rate of 300—500 lbs. per acre; bone at the rate of 350—400 lbs. per acre; or slag at the rate of 500—1,000 lbs. per acre.

Insect Pests in the Amateur's Greenhouse

John Gall, Inglewood, Ont.

THE combatting of insect pests is always a serious problem to the owner of a greenhouse. Green and black aphids are generally the first insects to make their appearance. They make great headway unless checked when they first appear. A small quantity of tobacco stems laid on the benches or, better still, on the hot water pipes, will keep them in check. Replace the stems with fresh ones about every two weeks.

Nicotine is a splendid insecticide for syringing or spraying almost everything in the greenhouse without injuring the plants. If diluted to about the color of tea, a teaspoonful to a gallon of water will be strong enough.

The red spider often becomes a pest during winter months, if the house should become very dry during the night owing to hard firing. It can be killed with nicotine, or, in the case of foliage plants becoming infested, by constant spraying with cold water, especially on the under side of the leaves.

White and black thrips also can be got rid of by spraying with nicotine. When these pests appear on plants in bloom, the nicotine can be sprayed on the hot pipes after the house has been closed for the night, and the results will be surprising.

The well known mealy bug must be watched for and when noticed must be picked off by hand. Spraying mixtures strong enough to kill it will also destroy plants. Constant watching and killing on their first appearance is the best remedy.

One of the hardest pests to contend with is the white fly. Its presence can be detected by making an examination of the underside of the leaves of the plant. In the adult stage, the insects will fly around the plant when disturbed, usually returning to the same plant. In the egg and nymph stage they are attached to the under side of the leaf, and can scarcely be recognized with the naked eye. This insect has sucking mouth parts and cannot easily be controlled by the use of spray poisons. There is but one sure remedy, when once these pests make their appearance in the greenhouse. Prepare to "present arms" to them immediately and keep prepared for their return.

Hydro-cyanic acid gas is the only kind of fumigation that will clear them out, but on account of its dangerous character on human, as well as insect, life, people are rather timid about using it. If ordinary care is taken, there is not the slightest danger. In using it, the first thing to be done is to measure the cubic feet of the house carefully. See that all ventilators are closed, and all doors locked, except the one through which you will make your exit. Heating pipes should be set for the night. The temperature of the house should not exceed sixty degrees Fahr. The foliage should be as dry as possible, as the presence of moisture increases the liability of injury to the foliage. Use a stone or glass vessel, and place it in the aisle in the centre of the house.

The following directions will serve for the use of cyanic acid gas in a small house, about fifteen feet long, eight feet wide, and about seven feet high at the ridge. Put into your vessel a pint of water, then pour in a quarter of a pint of sulphuric acid. Next, place one ounce of cyanide of potassium in a piece of tissue paper, and, when all is ready, drop into the acid. Get out as quickly as possible and lock the door. Allow the gas to remain for about fifteen minutes, then open the door and allow it to remain open for about half an hour before any attempt is made to enter the house. By that time all danger will be over. Do not let the acid spatter on the hands, either in handling it, or when placing the cyanide in the vessel, and above all things do not make any attempt to pass the vessel after you have placed the cyanide in it.

Watch the new house plants, obtained at Christmas time. Remember they are from a greenhouse, in which the air is moist, so water frequently and thoroughly. A good way is to set the pot in a tub or pan and sprinkle the leaves. If it is a flowering plant, be careful not to get water on the flowers.

Fore St. Avenue, St. Thomas, Ont., is lined by the residences of railroad men. The St. Thomas Horticultural Society has planted beds at the corners of the streets similar to the one on the left hand side here shown, which was 4 x 20 feet. The other beds were planted by the residents.

The Rose and Perennial garden of Mr. W. H. Heard, The Maples, St. Thomas, Ont. Note the planting arrangement.

Care and Culture of House Plants

HOW refreshing it is to enter a home and find plants growing in all their beauty. Then we really appreciate them. Palms are one of the leading and most useful house plants, as their bold yet graceful foliage makes them stand out prominently as a decoration whether in the hall or sitting room. There are several varieties of palms. The Kentias are used mostly here. Kentia Belmoreana and Kentia Forsteriana are among the hardiest varieties and give the best results. Do not neglect them for a time and let them dry out, for then they will receive a check, although they may not show the effects of it for some time afterwards.

Palms should be repotted at least once a year, using good fibrous loam, three parts, and one part sand. If it is a large plant, add a dust of bonemeal which is very beneficial. Palms need to be firmly potted. Do not over water at the roots. For a good sized plant in good growing condition and not pot bound, watering once a week will be sufficient unless the house is kept exceedingly hot. Sponge the leaves as often as possible as they derive considerable nourishment through the leaves, and this practice will also keep down insect pests. If this is done regularly, palms will grow and thrive for several years.

Araucarias (Norfolk Island Pine) make a beautiful house plant. They will grow in almost any part of the house, as a small plant can be used on the table, and larger species look well on pedestals, or in any convenient corner of the room. Water once or twice a week according to the condition of the roots. If the pots are full of roots they will take water nearly every day. No insects seem to bother these plants, but they like the overhead spray, otherwise they get too dusty and dry. This can be done at this season of the year by standing them in a bath and using a watering can with a fine rose. In the summer the spraying can be done on the lawn. Re-pot them the same as the palm. Do not forget to give a clean pot with good drainage.

Aspidistras Greenleaved and Aspidistra Lurida variegata, striped with white, are the easiest of all house plants to grow. In them you have a plant that will do fine in the hall and will always attract attention. They like a good supply of water with leaves sponged often. When re-potting, use a good stiff loam. They can easily be parted when they get too large.

Ferns.

Ferns you will find in nearly every home. The varieties are numerous, though only a few of the hardiest varieties are grown here. I suppose the old Bostoniensis,. commonly called Sword Fern, are just as popular as ever. Every one can grow a Sword Fern, as they are strong growers and will adapt themselves to almost any position in the home. There are several varieties of the Nephrolepis family. The finer varieties are not quite as hardy as the plain sword, but still they can be successfully grown. The varieties which have proved satisfactory here are Nephrolepis Elegantissima, Nephrolepis Whitmani, Nephrolepis Scotti, Nephrolepis Amerpholi.

Many people seem to have trouble with their ferns at this season of the year. It is a little hard to understand the causes sometimes. Generally it is because they have received a check at some time. In the Nephrolepis family, the chief trouble is turning brown in the centre. This is often caused by their either being allowed to get too dry at the roots or being kept too wet. You will find them sometimes standing in a jardiniere half filled with water. This will soon decay the roots and turn the soil sour. Care and judgment should be used in the watering of ferns. Never let them become either dust dry nor too wet. An occasional spray overhead will give them strength. This, I consider, is really necessary, as with so much dry heat the fronds get far too dusty and dry. Greenhouse treatment is different, as several varieties can be grown in greenhouses without overhead spraying, but this is because they have a moist atmosphere all the time. Fancy fern dishes are used extensively. Asparagus Plumosus, Small Nephrolepis, Pteris, green and variegated, and Holly ferns are good for this purpose. It is much better to plant them in a separate liner made of pottery, not tin, as the tin liner excludes all air from the roots, especially when a crust is allowed to form on top of the soil.

Asparagus Sprengeri makes a good trailing fern suitable for hanging baskets in the window. They like a good supply of water.

Remember To

Repot small geraniums.

Plan the garden now.

Sow pansy seed in the greenhouse for early plants.

Go over the canna, dahlia and gladioli bulbs to see whether they are keeping.

Plan to plant some of the herbs, such as dill, anise, and caraway, this spring.

Hotbed sash and soil should be made ready soon. In most regions hotbeds may be started next month.

Plant a few hardy gaillardia. No plant is more showy or can be used to better advantage for its cut flowers.

A few of the bulbs may be brought from the cellar, and forced slowly for flowers.

A potted plant must have air about the roots and good drainage, as it would in the garden.

Floral Suggestions for January

Henry Gibson

THERE is little work of any kind that can be done in the garden now that the ground is hard frozen to a considerable depth, and in most places covered with snow, save perhaps the trimming and pruning of the fruit trees. Authorities differ as to when is the proper time to prune. Some contend that fall and winter, when the tree is dormant, is the best time, while others just as strongly contend that early spring, just when the buds are beginning to swell, is the proper time. Personally, we believe, and it is our practice, that any fine day during the winter is a good time for pruning, and in this connection we would say that if you have not done the necessary pruning yet, get busy with it on the first opportunity.

The object of pruning a fruit tree is to increase its bearing of fruit, enhance its beauty and secure fruit of better quality. Fruit trees that have a tendency to grow low and dwarfish, and are required to grow taller, should be pruned to discourage lateral growth, and promote upward development. On the contrary, should the tendency be to grow too tall, and it is desired to dwarf, then the tops and the shoots that grow upward should be cut out and those encouraged that grow laterally. For a tree to produce well developed sunkissed fruit, it must have sunshine and air. Therefore, when the limbs become so numerous, and the foliage so thick that air cannot circulate freely, the top must be opened by cutting out the superfluous limbs.

All dead wood should, of course, be cut out. Look over the tree, size it up and down and decide whether or not it is necessary to remove any of the large limbs in order to admit sun and air. After you have attended to the large limbs, go over the tree again, this time for small details, cutting such small branches as are superfluous. The annual growth may be cut back to one-third its length.

In pruning always bear in mind that a tree with a moderate top will always produce better fruit than one with a large head, be it ever so abundantly supplied with sunshine and air circulation.

All branches should be removed close to the main stem, so that in time they will heal over without any tendency to decay, as would be the case if a stub was left. With large limbs, it is always advisable to cut an inch or two on the under side first, so as to prevent tearing of the bark when the limb falls. If damage is likely to be done when a limb falls, it would be good practice to throw a rope over a nearby branch, and gently lower the severed limb to the ground. All cut surfaces should be painted over with coal tar as soon as made, thus saving the necessity of going over them a second time. A sharp saw and pruning shears are the proper implements to use, not an axe.

The Indoor Garden.

Plants in the indoor garden are gentle reminders of the garden that was, before frost and snow overcame it, and the new seedsman's catalogue for 1916, some of which are already out, bring visions of the forthcoming summer garden. May it be better, larger, and more delightful than ever. As the catalogues come to hand, go through them carefully, for it is not too soon to formulate plans for the summer garden. Don't forget the novelties. Many of them have merits and are very desirable, yet don't allow your enthusiasm to run away with your discretion and order every novelty in the catalogue. Some are sure to be disappointing and should you happen to get several of these your ardor may be damped for a long time to come. These remarks apply with equal force to either the flower or vegetable seeds.

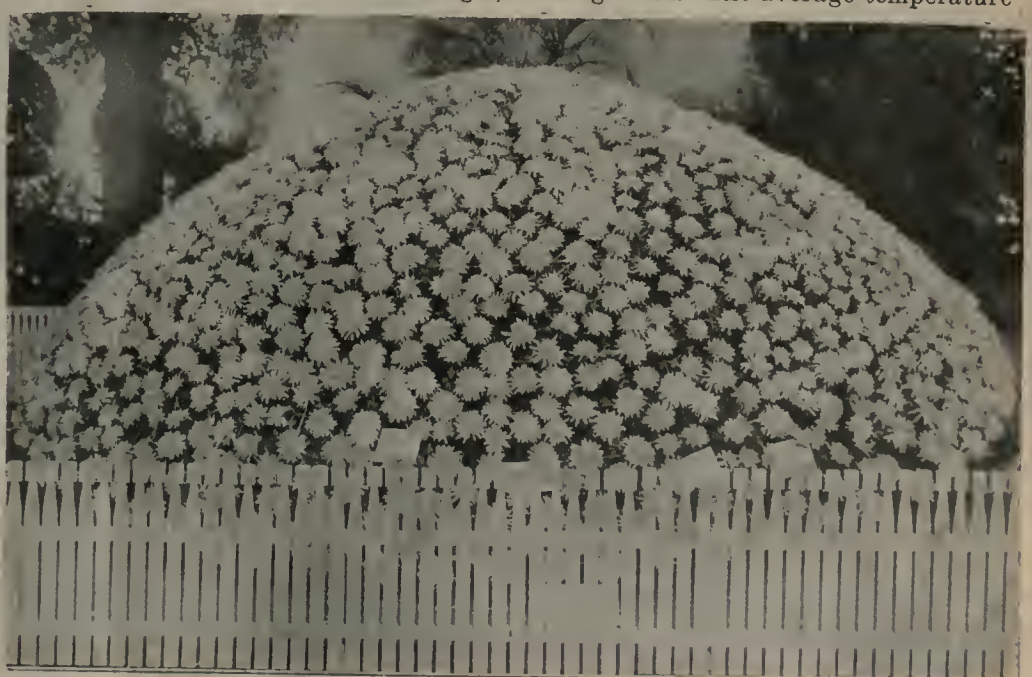
For those who have a small greenhouse, the following are a few of the many seeds that may advantageously be started now: Aquilegias, delphinjums, petunias, verbenas, thunbergia, salvias, shasta daisy, solanums (Christmas Cherry), sweetwilliams, heliotropes, asparagus, tomatoes, lettuce, etc.

Tuberous Begonias.

Tuberous begonias make useful plants for home and conservatory decoration. A batch started now will make fine plants by April and on through May, when a display of the different shades of white, yellow, pink and red are most pleasing and attractive. The tubers may be started in shallow flats, on the bottom of which has been placed two inches of sandy soil.

On this plant the tubes, close together, and cover with just enough sifted loam to fill up the spaces between them. It is not necessary to cover them completely, if they are well shaded from the sun, for as they start into growth they should be potted into three-inch pots. Two parts good loam, one part leaf mold, and enough sand to make it porous forms a good compost for the first potting. Well decayed manure, or commercial fertilizers may be added at subsequent pottings.

Bottom heat is an indispensable factor in starting tuberous begonias into growth. Should you not have a greenhouse, where this is readily available, the flats may be elevated on bricks above the radiator in the house, and the young flats placed in a light position as they are potted off. Keep the tubers fairly moist and every one will start into growth. The average temperature



This novel chrysanthemum plant had over 1,200 blooms. It was 15 feet in diameter and 6 feet high. It was shown at an exhibition held recently in Cleveland, Ohio, where it won a $250 prize.

The pelargonium Paul Crampel here shown promises to become one of the most popular varieties of the pelargonium. Photo by H. J. Moore, Niagara Falls, Ont.

should be between 60 deg. and 65 deg. at night, for the growing plants.

Miscellaneous Plants.

Gladiolus may be planted in deep boxes for spring blooming. The Covillei types are good. Peach Blossom, The Bride, and Blushing Bride being among the best. Window boxes provided with ample drainage, and filled with good soil are convenient receptacles to grow gladiolus in. They must be set in the cellar or dark cupboard until the growth appears, when they should be placed as near the light as possible. They require a temperature of 50 deg.

Hyacinths and other bulbs coming into bloom should be placed well up to the source of light to insure a sturdy growth. Other batches of bulbs may be brought in to provide a succession.

Don't allow the plants you purchased from the florists at Christmas to become dried up at the roots. Living rooms have a much drier atmosphere than a greenhouse, and consequently the demand made by the leaves of the plants for moisture will be great, and much more than the roots can supply if water is not thoroughly and regularly given.

A little careful attention in the matter of watering (so often overlooked during the holiday season) will result in the plants keeping their beauty for a much longer period.

Mignonette is hard to transplant, but the seeds may be sown where it is desired they shall bloom.

Fertilizing Principles Made Plain

John Gall, Inglewood, Ont.

THE amateur gardener who studies garden literature is apt to become bewildered as he ponders the enormous advice that is placed before him with regard to the subject of fertilizers and their use. If he were to make an attempt at following all the instructions that are set before him, he would have to be a chemist as well as a horticulturist, and a scientist as well as a raiser of a few fruits, flowers and vegetables. That the gardener who has studied the constituents of soils and fertilizers, has a considerable advantage over his competitor who does not possess his scientific equipment, cannot be gainsaid; but the amateur gardener who is merely an apprentice in the art of horticulture need not on that account despair of obtaining results which will amply repay him for time and pains which he expends upon the cultivation of his own little plot. The amateur should first fix his faith in natural and animal manures and, until these are thoroughly understood, abstain from artificial or chemical compounds, and all will be well.

What then are the plant foods necessary, which it should be our endeavor to constantly supply? The three important elements that contribute to the building up of plant life are: Phosphate, which assists in maintaining the framework, or the hard, woody material of plants; potash, or salt, which forms tissue, fruits, and seeds; and nitrogen, or nitrate of soda, which goes to the making of leaves, or soft stems.

These scientific terms, the use of which one finds so frequently employed in connection with artificial fertilizers or manures, might tempt the beginner in gardening to use them. He would probably employ them indiscriminately, and therefore with harm.

Artificial fertilizers, mostly, are what are known as incomplete manures, the reason being that they do not contain something of every food element essential for the nourishment of the plants. On the other hand, animal manures obtained from the farm-yard, are complete manures, because they embody in varying degree, but with a properly balanced share of each in their composition, all the foods which any plant is likely to require. Hence, for ordinary gardening purposes, the use of good farm-yard manure will supply all that is necessary in building up and the supporting of plant life.

There are other natural fertilizers which may be used with good effect in the small garden. Their elements are both vegetable and mineral, and they include, decomposing green crops, such as peas, beans, the leaves of cabbages, cauliflowers, potato tops and so on. These, with some manure should be piled and composted. If the pile is turned several times a year, the material becomes fine and uniform in texture. The decayed leaves of trees, pond mud, if it can be secured; burnt wood ashes, or the remains of the bonfire heap, soot and lime—these all supply useful plant food, and may be used with every confidence in the garden.

Farm-yard manure may be applied to the ground at any convenient season of the year, but it should never be used in a raw, green state. If it is in this condition when purchased, it had better be left in a heap, and allowed to mature for a couple of weeks or so, turning it over a couple of times before using it. Should it contain a large quantity of long fresh straw, allow this to rot somewhat, being excellent for clayey, heavy soil. It should be dug in about a foot deep in the fall. This will help to fertilize and at the same time tend to break up the ground. For the enriching of light sandy soils, nothing can exceed the value of cow manure. Besides being an admirable plant food, it will help to supply the binding qualities such as are required by light soils.

Cyclamen in Dry Houses

B. C. Tillett, Hamilton, Ont.

Amateur cultivators are often obliged to grow their plants in the dry atmosphere of a greenhouse, and, in consequence, sometimes fail. These plants require a much moister atmosphere than zonal pelargoniums, and when the two kinds of plants are grown in the same house a difficulty arises. This may be overcome to a large extent if the following hints are acted upon. Place laths on the stage, and slates or sheets of zinc over the laths, then put a thin layer of old sifted coal ashes; syringe the latter, and a very good base will be secured for the cyclamen pots.

A position facing east, north, or north-west will do if there is not any undue obstruction to the light. The ashes may be kept moist by syringing on warm days, and they will be moistened by the surplus water from the plants when the latter are watered.

If the ashes are damped with weak soot water and manure water, alternately, every ten days or so, the foliage of the plants will be much improved and kept from the attacks of insects. This should be done in the new year as the sun gains power.

A Northern Ontario Vegetable Garden*

Mrs. John Lorne McDougal, Haileybury, Ontario

THE same methods used to grow flowers are applied to vegetables. The out door seeding is accomplished usually from May 20th to the 1st week of June, when all the first seeding should be finished. Lettuce, spinach, peas, carrots and beets may be grown in successions, but I do not find that sowings do well made later than the middle of July. It is possible to grow a constant supply of green peas extending from the middle of June, if the season is good, until the garden is over. To accomplish this, a planting of an extra early variety, a couple of second early varieties, such as the well-known gradus, and several high varieties, each one bearing a little later than the other, give the best satisfaction. The high varieties grow to ten and eleven feet and often eleven peas to the pod. Two or three years ago we had wonderful results from the pea called "Alderman." It started bearing about the second week in July and continued indefinitely until weather conditions conquered.

Lettuce is grown with great ease, and I think to greater perfection of flavor and crispness than in old Ontario. I have tried many different varieties and prefer the American varieties of cabbage lettuce and English of Cos. There are few things to equal a head of Cos lettuce well bleached, with that richness of flavor the gift of our northern climate, a salad for an epicure. What is true of one vegetable is true in degree of practically all, with the exception of corn.

The northern vegetables, like the northern flowers, excel in quality. When sold, they should command a higher price. The carrots are tenderer, the beets are sweeter, the cabbages are finer grained and firmer, the beans are more brittle, and richer flavored, the peas,—Why, no one has really eaten green peas who has not tasted the first picking off a northern Ontario vine! Corn is grown successfully, and if an early supply is started in the hotbed, it is possible to have a crop from August 1st into October. But we succeed best with the early varieties, and none equal the Golden Bantam.

You can grow any unusual or less hardy vegetable you fancy, if you take the necessary forethought, and the result more than justifies the trouble. Around New Liskeard fine celery is grown. I have never seen better than exhibited at the Liskeard Fair this autumn. The onion exhibit was also noteworthy. In a large vegetable garden near mine, fall strawberries are a feature. I picked a handful well on in October and found them as sweet as in their usual season.

The Haileybury Horticultural Society has done a good work with their yearly show. It is always well attended and the results are seen around the town and country in improved gardens. Each year we see finer varieties of flowers and vegetables grown. Each year we have a better choice of vegetables on the market.

I would emphasize in conclusion that the best results come from the best seeds obtainable. It is amazing sometimes, what results the very fine seeds brought from other parts of the world, will bring, planted in the richly productive soil of our northern country.

*Extract from a paper read at the recent annual convention, held in Toronto, of the Ontario Horticultural Association.

An old cemetery in Galt, Ont., was converted some time ago into a park. In the center of the park has been erected this unusual pergola composed in part of 146 tombstones, some of which date back to 1828. Combined with the beautiful effect of the flowers and vines it attracts much attention.

Artificial Fertilizers

Geo. Baldwin, Toronto, Ont.

The theory of fertilizing consists in maintaining in the soil such an amount of plant food, both mineral and organic, as shall enable us to reap the largest possible amount of crops from the soil. All vegetables and most flowers are strong feeders, and a quantity of manure or commercial fertilizer is necessary each year. For the best results both are essential, as the manure alone contains an excess of nitrogen, and if commercial fertilizer is continually used alone, the soil eventually becomes deficient in humus.

When the man, whose gardening is confined to the back yard, reads that two thousand pounds of a certain fertilizer per acre is the proper proportion, he gets but a vague idea of the quantity to apply to his five foot perennial border or twenty foot square vegetable patch, yet it is more important for him than the large grower to exercise care in the application of fertilizers. Too much fertilizer is as bad, if not worse, than none at all, givind a tendency to rank growth, so don't guess, but use about half a pound to ten square feet. I have had excellent success with this quantity of fertilizers for both flowers and vegetables, using that prepared at local abattoirs.

If it is desired to mix the ingredients yourself, procure according to the size of your lot, one part sulphate of potash, one part sulphate of ammonia, one part nitrate of soda, half part air-slacked lime, and half part powdered sulphur. Mix these thoroughly and scatter broadcast all over your lot. After having dug it deeply, rake it in gently with the rake, about an inch deep, before sowing seeds.

I have found that nitrate of soda by itself is magical with lilies, ferns, funkias, tulips, and hyacinths, and is excellent for asparagus, celery, and especially rhubarb, but is apparently no benefit to columbines and onions. Give a handful to two and a half gallons of water around the plants. The work gives the best results when done in the evening.

Carefully save all wood ashes, protecting them till used from rain. They are a valuable source of mineral plant food, especially of potash.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated The Canadian Bee Journal.
Published by The Horticultural Publishing Company, Limited,

PETERBORO, ONTARIO

H. BRONSON COWAN, Managing Director.

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1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests. The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, and of The Canadian Horticulturist and Beekeeper, $1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising rates, $1.40 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December 1914. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 13,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1914	11,570	August, 1914	12,676
February, 1914	11,550	September, 1914	13,729
March, 1914	11,209	October, 1914	13,778
April, 1914	11,970	November, 1914	12,967
May, 1914	12,368	December, 1914	13,233
June, 1914	12,618		
July, 1914	12,626	Total	160,293

Average each issue in 1907 6,627
Average each issue in 1914 12,524

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not apply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honorable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

Theories Upset.

We are all more or less creatures of habit. Because some person at some time has done a certain thing in a certain way, thousands often continue to follow the example thus set for years thereafter, without investigating for themselves the wisdom of their actions. It has not infrequently happened that practices recommended by governmental authorities have been followed extensively by the public, only to have it revealed sooner or later that the remedies recommended were unworthy of acceptance. For instance, some years ago, farmers' institute speakers and dairy authorities proclaimed throughout the length and breadth of the land that farmers should cool their milk immediately after milking. One means of doing this, which was advocated, was to dip it or run it over an aerator. Investigations have revealed the fact that the aeration of milk is a frequent cause of contamination and the practice has been discarded.

For many years it has been advocated that after pruning trees, the stubs of the branches should be painted or otherwise protected to prevent rot and disease of the limb. This extensively followed practice is now being discredited by Prof. G. H. Howe, of the Geneva, New York, Experiment Station. As a result of experiments, Prof. Howe claims to have proof in the case of apple and peach trees that dressed wounds are more subject to disease and rot than wounds left undressed. Avenarius carbolineum and yellow ochre, two commonly used preparations caused so much injury that their use is condemned. Coal tar also proved injurious, although it quickly disappeared through absorption or evaporation. White lead, and white zinc caused about the least injury of any of the preparations used. Prof. Howe contends that there is nothing to show that it is worth while to treat wounds, large or small, of tree fruit with any of the substances in common use.

There are many people who will hesitate to follow this advice. As the matter is an important one, it would be well for our experimenters to continue the investigations, and watch the results covering a period of years.

City Beautification

The Dominion Commission of Conservation has undertaken many valuable lines of work. One of the best of these is connected with its town planning department, under the direction of Mr. Thos. Adams. Mr. Adams had had many years of experience in the old country before he accepted his present position. Already he is making his influence felt in Canada, and his services promise to become increasingly valuable as the public learns more about him, and the importance of his work.

In the course of a number of addresses which Mr. Adams has delivered during the past few months, Mr. Adams has pointed out some of the defects of our present hit-or-miss system, or lack of system, as well as possibilities for future improvement. As a result of the fact that we have done nothing, in Eastern Canada at least, to prevent speculation in land, it has been pointed out by Mr. Adams that we are making slums in our cities every day. There is $16,000,000 worth of vacant land in Ottawa, yet they are building high structures there, because it is cheaper to build in the air. All the people in Canada could live on the land subdivided around Moose Jaw, and sold, or offered for sale, as town lots. Seventy-five per cent. of our streets are too wide, and twenty-five per cent. too narrow. Streets should be graded, according to the traffic, and number of buildings to be accommodated. Recreation facilities should be located as close to the houses as possible. In England they are planning cities one hundred and fifty years in advance, although their difficulties are greater and their cities are not growing as fast as our cities in Canada.

Mr. Adams has addressed a number of horticultural societies in Ontario most acceptably. His lantern views are appreciated by all who see them. Horticultural societies that have not yet done so, would do well to place themselves in touch with Mr. Adams. Should they succeed in securing his services for a public meeting, an effort should be made to have the city fathers and Park Commissioners attend in a body.

A Remedy Required.

Although the flavor and color of Ontario apples is unexcelled, they continue to be outsold on their local markets by fruit that has been shipped three thousand miles or more in answer to the demand of Ontario consumers for a certain quantity of fruit of a high standard of quality. Were this outside fruit produced on low priced land, picked and packed by cheap labor and marketed in Ontario at a price with which the Ontario producer could not compete successfully, the situation would not be so hard to explain. The reverse, however, is the case. Apples grown in the province of British Columbia, and in the states of Washington and Oregon are produced on land purchased at prices ranging from two to five times the value of most of the best apple land in Ontario. Labor expenses as well as supplies of almost all kinds are also dearer in the west than in the east. In addition, the high transportation charges on the western fruit constitute another factor which favors the eastern producer.

While there is no inherent reason to prevent Ontario fruit growers from holding their own markets and every reason why they should do so, the fact remains that they have not yet reached the point where they are willing to put forth the effort necessary to enable them to succeed. The very difficulties under which western producers labor have compelled them to exercise every care in the selection of varieties, the fertilizing, pruning and spraying of their orchards and the packing of a superior product. It is this product which is holding its own in the consuming centres of Ontario and the east. This western fruit costs fifty to seventy-five cents a box more than the eastern product, but is so true to name, and so evenly graded that the large hotels and other buyers who cater to a fancy trade are willing to pay the difference in price. When Ontario fruit growers are willing to make the necessary effort, they will be able to gain and hold this trade for themselves. A few have made a successful start in this direction. The fact that considerable western fruit is produced on irrigated land, may affect, but should not control the situation.

The open crate for shipping apples, which has been tried out in Ontario this year, has met with a degree of success that indicates that it may prove a considerable factor in the apple trade of the future. As serious objections are being made to its use, in spite of the fact that successful shipments have been made to the west, where the

open crate has sold readily for $2.00 a box, it indicates that its use is still in the experimental stage. The discussion of its merits at the approaching convention of the Ontario Fruit Growers' Association this month should prove of interest and value.

It is pretty late in the day to begin talking about scientific town planning when two of our cities have crossed the half-million mark, and the need of land for building purposes in all our centres, from the rural hamlet to the metropolis, has been anticipated for years to come by speculators and withdrawn from agriculture for the purpose. Nevertheless if foresight is used the development of Canada will soon make work for the scientific town planner. In the meantime by demonstrating to the people how things might have been, he may do something in influencing them to enquire into the economic reasons of why we have made such a mess of our city making. It is because economic laws have been ignored that present conditions exist.

PUBLISHER'S DESK

Our December issue completed the first year during which we have published The Canadian Horticulturist in editions, one for the fruit grower and one for the flower grower. These special editions have proved so successful we purpose continuing them throughout the new year.

* * *

The February issue of The Canadian Horticulturist will be our fifth Annual Spraying Number. The list of contributors to this years' issue shows that it will maintain the high standard of our previous special spraying numbers. Some of the best articles will include the following: "The Fruit-Tree Leaf-Roller," illustrated by Prof. L. Caesar, Provincial Entomologist. This is one of the most destructive fruit pests in Ontario. Remedies for its control will be given. In the Apicultural Edition of the Canadian Horticulturist for December appeared an article by Prof. Caesar entitled: "Poison Sprays and Poison Baits in their Relation to Bees." This subject being one that is of great importance to fruit growers, we have decided to re-publish this article in the fruit edition for February. Mr. W. E. Biggar, of Hamilton, who has charge of fighting the San Jose scale and similar pests in Ontario, will contribute a special article drawing lessons from the results obtained to date. "Sprays and Spraying" will be the title of an article by A. W. Cook, of Herold's Fruit Farm. Dr. G. E. Sanders, of the Dominion Entomological Division, who has been accomplishing a splendid work in Nova Scotia, will write on the subject: "The Control of Fruit Insects, with special reference to Nova Scotia."

* * *

In the Floral pages of our February issue, there will be an interesting article by Mr. B. C. Tillett, entitled "Insect Pests in the Amateur's Greenhouse." Mr. Wm. Hunt, of Guelph, will contribute an illustrated article entitled "Notes on New Plants, and Plants not Well Known." Mr. Henry Gibson will give his usual helpful suggestions, dealing especially with the care of house plants during the winter.

* * *

Some years ago we conducted a Poultry Department in each issue of The Canadian Horticulturist. We have decided to resume this department. Prof. F. C. Elford, of the Dominion Experimental Farm, Ottawa, has consented to assist us with this department. The first article by Prof. Elford appears in this issue. As a large percentage of the readers of The Canadian Horticulturist raise poultry as well as fruit and flowers, this department should be unusually helpful.

* * *

So many horticultural societies in Ontario, as well as in some of the other provinces, are now interesting themselves in the distribution of flower and vegetable seeds among the children of the public schools, a demand has been created for simple, helpful articles that can be distributed among the pupils of these schools, giving instructions in regard to the cultivation of the most commonly grown plants and vegetables As a means of helping horticultural societies in this work The Canadian Horticulturist is now having prepared a series of articles that should do much to answer the requirements of societies engaged in this work. We are planning to publish these articles in The Canadian Horticulturist, and later to re-publish them in pamphlet form. We may have to make a nominal charge for these, but if so, it will be light. Horticultural Societies that would like to obtain copies of these pamphlets are requested to write us.

* * *

Advertisers are urged to reserve space in our February issue at the earliest possible date. Although this issue will be larger than the average, it will assist us in giving our advertisers the best possible position, if they will forward their copy early in the month.

SOCIETY NOTES

Guelph

The Guelph Horticultural Society last year accomplished much good work. Over 1,000 bulbs were distributed to members, and about 300 shrubs. Altogether a little over $125 was spent on premiums for members. About $100 was spent on flowers and planting for municipal and government buildings. Garden seeds of flowers and vegetables were also purchased and distributed to the schools of the city.

Two lawn and flower garden competitions were conducted. Three prizes were given in a competition for the best-kept lawn and flower garden, working people only. Prizes, first, $4; second, $3; third, $2. The second competition took in all districts in which there was no competition last year. This provided a competition in each of the six different wards of the city. There were three prizes for each, as follows: First, $3; second, $2; third, $1, making a total of $36 in this competition. A vegetable garden competition was also conducted, covering the city and including over forty entries. In this competition six prizes were awarded, ranging from $3.50 down to $1. No entry fees were charged in any of the competitions.

There was a window and verandah box competition, open to members only, with four prizes, ranging from $3 to $1.

For the best lawn and flower garden in the city and for the best vegetable garden, diplomas were awarded, providing the owners were members of the society, and had not won a diploma in previous years.

Vegetable seeds, aster seeds and gladioli bulbs were distributed for the scholars in the senior grades of each city school, to be grown at home by the pupils.

In the spring the society attended to the planting and arranging of window boxes at the city hall, fire hall, post office and public library, all of which helped to beautify the city.

St. Thomas

The St. Thomas Horticultural Society had a busy year last year. The society ordered 120,000 bulbs, of which 20,000 were planted in beds around the city, and the balance were distributed to the different members. The society gave away about 2,000 bouquets to the sick and the poor.

The receipts for the year were: Cash balance, Oct. 31, 1914, $111.30; government grant, $800; city grant, $150; members' fees, $1,339; donations, $722; bulbs and shrubs that were sold, $1,059.20; other income, $105.61. Total receipts, $4,287,11.

The disbursements in part were: civic improvement, labor, plants, etc., $1,415.03; bulbs and shrubs, $1,954.27; secretary's services, commissions on membership and clerical work, $426.26; flower show prizes, $67.80. The total disbursements were $4,164.13. An orchestra was present at the annual meeting.

Ottawa

The Ottawa Horticultural Society is without the services of one of its oldest and most valued officials, in the person of Mr. J. F. Watson, who recently resigned as secretary-treasurer, which office he had held for eighteen years. His resignation was deeply regretted. Mr. Horace Jackson, of 195 Waller Street, has been elected as his successor. The society is aiming at a membership of 2,000 this year.

Hamilton

The receipts of the Hamilton Horticultural Society last year amounted to $1,063.49, and expenses to $997.72, leaving a balance of $143.77. The membership was 457. During the past year four lectures were delivered.

Save the old Varieties.

W. M. Turnbull, Galt, Ont.

An apple picked last fall from a tree on the farm of Mrs. Jane Lockie, near Galt, had a circumference of 14 inches and weighed 21 ounces. It was symmetrical in shape, clean and sound. One tree yielded three and a half barrels. It was an early winter variety known as the Gloria Monday.

Something should be done to save many of these varieties of apples from becoming extinct. Varieties many of us knew when we were boys at home are becoming extinct, their names lost, and the trees, where any are left, are either dead or dying. There are some half-dozen and more varieties I remember as a boy in my father's orchards that I have been looking for at least twenty-five years at shows and elsewhere, and yet I have not found them. Our early varieties, such as the Duchess, Yellow Transparent and others cannot compare with the flavor of some of these old varieties.

Better community co-operation in growing potatoes of one or two varieties and then careful grading would mean thousands of dollars to some sections, and the establishment of a steady market for their product.

Quebec Fruit Growers Hold Profitable Meetings

THE Pomological and Fruit Growing Society, of the Province of Quebec, held its annual meeting at Macdonald College, December 9th and 10th. While the number of members in attendance was not as large as that of last year, yet the interest was keener than ever. This was evidenced by the discussion following each address.

After the opening address by the President, R. A. Rousseau, the members were cordially welcomed to the halls of Macdonald College by Dr. F. C. Harrison, President of the College. Hon. J. Ed. Caron, Minister of Agriculture for the Province of Quebec, explained what the Provincial Government was endeavoring to do to benefit the fruit growers. Having mentioned the value of the demonstration orchards, and the demonstrations given at many different places in the Province, he outlined a plan which was already under way, whereby the farmer with the aid of experts, would grow their own nursery stock for the orchards that were to be. The nurseries now established aggregate ten acres in extent. Either in the addresses or discussions nearly every problem of vital importance to the fruit grower was touched upon.

The Rev. Father Leopold's interpretation and remarks on the Inspection and Sales Act made it clear that it was necessary to explain to farmers and fruit growers this act a little more in detail, endeavoring to fix in their minds standards as to size, amount of coloring, etc., and to impress upon them the fact that to set a standard higher than that called for by the "Sales Act," would be of the greatest benefit, not only to themselves, but to fruit growing in general. The purpose of the Act was to help them rather than hinder, while at the same time protecting the consumer. The question of making a separate class of wind falls was brought up and many growers felt, after the experience of the past season, when a great deal of money was lost on account of the large number of wind falls, that these apples might be classed separately, and the grade marked in some way so as not to confuse it with the ordinary grades. In this way the grower might get a fairer deal. This year windfalls, No. 1 fruit, except for a slight bruise, and capable of being kept for considerable time, had to be classed as No. 3 grade and, of course, brought a small return.

A Recognized Authority.

Much interest was taken in the address of Mr. B. C. Case, of Sodus, New York, a remarkably successful fruit grower of that state. Speaking of Mr. Case, Dominion Fruit Commissioner, D. Johnson said he considered him to be the most successful fruit grower he had met in his 4,000 mile tour of orchard inspection in the Eastern and Western United States and Canada. He is a thoroughly practical man, having some 650 acres, mostly of apple orchard, 130 acres being in cherries. On his farm are growing some of the finest Baldwins and Greenings in the country. Mr. Case was enthusiastic in his encouragement to the fruit growers to solve the problems confronting them. Forty years ago production of apples was small and what were produced were used for making cider. As a young man he was advised to tear out the two and one-half acres of apples he had and plant corn or clover or some more profitable crop. No one dreamed then what the future of the apple industry would be. Now the two and one-half acres of orchard will give a greater return than all the rest of the farm would at that time.

"In New York state evaporation of apples is no small branch of the apple industry. This takes care of the inferior fruit. Distribution is the weak point to-day. Only half the problem is solved when the fruit is packed and at the station. With proper organization and good management there would be no over-production. If each person in the United States ate one apple each day, the biggest crop ever produced (59,000,000 barrels) would not be half enough to meet the demand. The best pack is the only pack to bring success. The poor pack deceives only the packer. The essentials to the greatest success are: "Do unto others as you would they should do to you," and "love your neighbor as yourself." Then will come that co-operation which is so necessary to large and permanent markets.

Prof. T. G. Bunting said that just as good fruit can be grown in Quebec as in any other fruit growing district, and splendid markets are available. From statistics it might appear that we have a large number of trees coming into bearing each year, but in reality there are comparatively few. There have been no large plantings, filling in vacancies caused by winter killing and neglect account for a great number. Not over twenty-five per cent. of trees planted ever come into profitable bearing. To size up the situation correctly, the number of unprofitable as well as the profitable bearing trees should be considered, not simply bearing trees.

Where it is advisable to plant, large plantings would probably fare better than small ones, as considerable money would be invested and, therefore, the orchard would be likely to receive better care.

Too many varieties were being planted, also varieties which had not been tested for hardiness, or those which were decidedly too tender. Young trees were bought and set out simply on the recommendation of the tree agent, who often knew nothing of conditions.

The number of varieties, the poor choice, close planting, and the lack of thorough spraying were responsible for failures in many cases, and the small degree of success attained in so many others.

In Quebec McIntosh and Fameuse should be the chief varieties, planted with few others, probably in the proportion of 50 per cent. McIntosh and 40 per cent. Fameuse.

Several of the addresses given were illustrated with lantern views, and many obscure points were made clear in this way. The views shown by Mr. R. B. Whyte, of Ottawa, were particularly fine. He took his audience on an interesting trip through the parks and gardens of England, visiting on the way Stoke Pogis, and many other historical and beautiful places.

Mr. M. B. Davis spoke on "The renovation of an old apple orchard by dehorning," that is, cutting back to the larger limbs and growing a new top. In this way profitable crops had been obtained in three years after cutting back. Treatment of wounds with creosote and coal tar was advised. Dehorning sometimes does more to invigorate an old tree than cultivation and fertilizers. The best time to perform this operation is in March.

Prof. Lockhead showed the relation of fruit spur formation to pruning, bringing out the fact that the crop next season depended upon the treatment given thia season.

Mr. Duporta, Macdonald College, found from experiments he conducted during the past aeason that the most effective single spray for the Bud Moth, was the one applied as soon as the leaves were fairly well expanded. The spray mixture was lime sulphur with arsenate of lead. The application given three days before the opening of the flowers was next in effectiveness. The one applied as soon as the larvae began to enter the buds, was not very effective, which is contrary to the general opinion. The combination of second and third sprays given in ordinary spray calendars should be sufficient to control this pest.

The paper read by Mr. W. T. Macoun, of the Dominion Experimental Department, Ottawa, on the work of the Experimental Station in Quebec, was very interesting to the growers of this Province. Some valuable information was given regarding the degree of frost in the different districts in Quebec.—A.C.G.

The Future of Fruit Growing

"I do not believe that there are any grounds for pessimism as to the future of fruit growing in Ontario," said P. W. Hodgetts, of Toronto, recently while addressing a meeting held in connection with the recent Lambton County Horticultural Exhibition. "The business will have its ups and downs, as in the past. Gluts there have been many times, growers discouraged and orchards neglected, but to the man with energy and push and stick-to-itiveness, along with common sense, the future is just as bright as it ever was. When we consider what our apple growers are up against in marketing the miscellaneous assortment of apples planted in Ontario thirty or forty years ago, one almost wonders that we have made the success we have. Small orchards, of many varieties, fully fifty per cent. not wanted in the present markets at any price, trees neglected through ignorance or lack of care, in early days poor marketing facilities, etc., all have been against us.

"With new orchards of larger size, fewer and better varieties and improved methods of marketing, Ontario can still more than hold her own in all markets of the world. The west is handicapped by expensive labor and land, and the extreme east by a more unfavorable climate. Ontario has large local markets, and is favorably situated for export and prairie markets. Nova Scotia is well situated for its export trade, but lacks both local and prairie markets. The west also lacks local markets and has extremely heavy transportation charges to British and European markets. With everything in our favor I would not hestitate to continue planting with varieties in demand and in blocks of large enough size to provide straight or mixed cars as the various markets demand.

Of other fruits, the present situation is favorable to pears, sweet cherries, strawberries and raspberries, and not so good for plums, sour cherries, red currants and American gooseberries, except for local markets. The peach has always been an uncertain quantity, large profits or heavy losses coming at times. The future outlook would not deter me from continuing in the fruit business and increasing my acreage under the favorable conditions of Lambton county."

You cannot plant poor off- type potatoes year after year, and get good results.

Notes on The Season's Fruit Trade

E. H. Wartman, Dominion Fruit Inspector, Montreal

THE export of apples from Montreal have been the smallest in my recollection of forty years' trade, 93,876 barrels and 66,639 boxes. The record of this port is over 700,000 barrels. Fortunately for shippers, the season was mild, as there were none frozen throughout the season. The apples tested by thermometer showed temperature not of a destroying nature.

As I have inspected here apples from four Provinces, I have come to the conclusion that it has been the worst season for funge diseases throughout the Dominion that fruit men have ever had to encounter, and as invariably follows, large quantities of apples have been graded seconds and thirds. The seconds have come into common use and are considered by the housewife to be an economical asset at 75c a barrel less than No. 1 fruit. This pack has been uniformly good this season, and much credit must be given to the inspectors who know the technicalities of grading, and who have imparted to those in a quandary, as to what to do, reliable and practical information just at the time when most needed.

One very noticeable thing has been the great number of cars of apples containing 150 barrels. These have shown clearly that this number necessitates only three tiers, which are easier loaded and unloaded, with less breakage. To illustrate what I mean, I might state that while inspecting apples close to where three cars were being unloaded, and the barrels being rolled into a shed, two cars were unloaded that had 150 barrels piled in three tiers, without a broken barrel. The other car had 200 barrels piled in four tiers and in unloading, two barrels uncontrolled from fourth tier fell. The face end of one barrel came out and the tail end of the other. Imagine the loss on such re-coopered barrels when the work is done in a hurry. Besides there are always those who are eager to see a barrel break open in order that they may get a pocket full. These barrels would land in a slack, bruised condition, and sell for one dollar to one dollar and fifty cents a barrel less than a good sound barrel. Therefore I am led to believe the three tier car much the safer.

The barrels this season were of the eight hoop type, both strong in stave and hoop, which reflects credit on our coopers.

As our Northern Spy apples have touched forty shillings per barrel, or nearly $10.00, it shows how much our best varieties are appreciated in the old land. Let us hope that this cruel war will soon be over, that normal conditions may reign once more when all nations will be at peace. Our fruit trade would then flourish as never before.

Vegetable Growers Had Losses

The present year has not been a favorable one for vegetable growers in Ontario. Speaking at the recent Lambton County Horticultural Exhibition, the provincial vegetable specialist, Mr. Johnson, of Toronto, said that the continued wet weather from July 1 to the end of August caused considerable losses in many parts of the province. Also there had been more insects which damage vegetables than had been known in the past twenty-five years. Fungus diseases had this year attacked vegetables that heretofore had been practically immune to disease. The average loss in all vegetable districts would amount to twenty-five per cent.; some districts as high as fifty per cent. As the vegetables produced annually in Ontario are valued at over three

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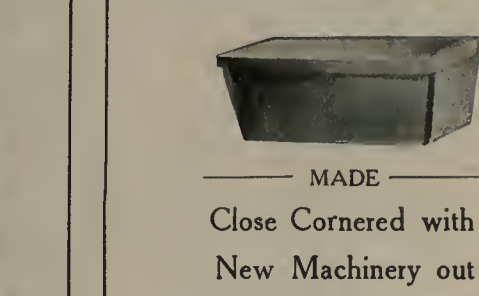

Fruit growers use Aylmer Sprayers because they give RESULTS. Aylmer Sprayers have the force to drive the mixture into crevices of bark and buds and make it penetrate the hiding places of the destructive little insects. No time wasted on repairs during the Spraying Season if you get a Sprayer that DOES NOT GET OUT OF ORDER. Any man who has had the exasperating experience of having to stop on account of loose "packing" on the pistons, will be glad to own an Aylmer Sprayer. It is the only Sprayer constructed without troublesome "packing." In the Aylmer, the pistons are made tight by three bronze expanding rings, the same as the pistons in automobile engines. This Sprayer is easy to pump and there is no pressure leakage; every ounce of pressure being turned into spray work. Agitators prevent clogging; nozzles are up-to-date; throw full distance and with full power from a stream to a spray. Every part designed to give perfect service. Prices low. FREE GUIDE TO SPRAY MIXTURES sent on request.

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million dollars, the loss to the province may be understood.

Potatoes suffered severely this year from blight and wet weather. Cauliflowers were practically destroyed by wet. Onions were blistered more than had ever been known. Carrots, beets and parsnips suffered from green aphis in many sections. These conditions reveal some of the trials and difficulties of vegetable growers.

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Try Moore's Strain Next Year.

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Not a single complaint.

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Everyone knows their strain of three-band Italians.

Manitoba

Prof. F. W. Brodrick, Secretary of the Manitoba Horticultural Association, Winnipeg

It was a pleasure to me to have the opportunity of attending the annual meeting of the Minnesota Horticultural Society which was held at Minneapolis, Minn., on December 7, 8, 9, 10. It was a delightful change to come into touch with the horticulturists of our neighboring state. The meeting was well attended, delegates being present from all parts of Minnesota, and from the adjoining states of Illinois, Wisconsin, North and South Dakota, as well as from Manitoba. The meetings were bright and interesting throughout.

One of the interesting features was the number and variety of papers and addresses that were given. No paper was longer than twenty minutes, with a limited time for discussion. This prevented any speaker from monopolizing too much time, and also prevented the discussions from becoming wearisome and dull.

Practically all phases of horticultural work, including fruit and vegetable growing, landscape gardening and floriculture came in for a place on the programme. These papers, coupled with the interesting discussions given by experts brought out much valuable information.

Through the efforts of the Horticultural Society, Minnesota has become a fairly important fruit growing state, and discussions on varieties and new fruits came in for an important place on the programme. To increase the planting of fruits, the state has established a fruit breeding farm at Excelsior, Minn., in charge of Charles Harleson, where many new fruits are being bred from hardy strains, tried out at the Experiment Stations and sent out for distribution throughout the state. The discussion on fruits brought forth some interesting suggestions on hardiness from Professor Waldron, of Fargo, North Dakota, and Prof. Hansen, of Brookings, South Dakota. Professor Hansen, who has given the question of plant improvement considerable attention, and who has been to Siberia to locate hardy types for the United States Federal Government, contends that the only method of getting hardiness in fruit is to bring plants from countries where hardiness is essential, or produce hardy strains by infusing the blood of hardy native fruits.

The meeting of the Women's Auxiliary on Thursday afternoon brought forth interesting papers and discussions on the place of horticulture in the home. A valuable paper on "The value of horticulture on the farm" was contributed by Mrs. Clarence Wedge, of Albert Lea, Minn., and an interesting illustrated adress on "The Highway Beautiful," by Mrs. James Jenneson, of Minneapolis.

Governor Hammond, of Minnesota, complimented the Society during the annual banquet, on the excellent work which had been done in furthering horticulture, and predicted that Minnesota would, in time, become an important horticultural state through the efforts of the Society. President Vincent, of the University of Minnesota, delighted the convention with a half hour talk, on Friday afternoon, on "How may the State University and the State Horticultural Society best co-operate in advancing the horticultural interests of the State." The convention closed with short addresses from old members, among the more prominent of whom were George J. Kellogg, Strawberry grower of Janesville, Wis.; Clarence Wedge, Nurseryman, Albert Lea, Minn.; and C. S. Harrison, Nurseryman, York, Neb.

One of the features of the convention was the attractive floral exhibits put up by the florists of St. Paul and Minneapolis, and the exhibits of fruit and vegetables put up by the members of the Society. These exhibits gave the visitors an excellent idea of the horticultural possibilities of the State.

A pleasant event was the presentation of a gold watch and chain to secretary Latham on the anniversary of the twenty-fifth year of his service as secretary of the association. Secretary Latham has built up the Society from a small, struggling organization, to a live, vigorous society, with membership of over three thousand members.

The features of the convention that impressed me most were: first, the good organization that existed, and the despatch with which the business of the convention

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was carried through; second, the close relationship between the State Agricultural College and the Society; third, the wide range and practical nature of the activities that are being carried on by the society itself.

British Columbia

The Department of Agriculture will again conduct fruit packing schools during the coming winter. While the supply of packers was nearly equal to the demand in 1914, there was a shortage in many districts this year owing to the enlistment of a number of the packers. It is hoped that advantage will be taken of this opportunity to supply the deficiency. As in previous years, the local administration of the packing schools will be placed in the hands of a responsible body as the Farmers' Institute, the Fruit Growers' Association, or the Board of Trade.

The local organization must guarantee not less than twelve pupils, but not more than fifteen, at a fee of two dollars each, to take the twelve lessons of two and a half hours each, the school extending over the week. When twenty-four to thirty pupils can be secured, a double packing school will be arranged. The hall provided should not be smaller than thirty feet by fifteen feet, well lighted, and sufficiently heated to prevent freezing of the fruit at night.

In districts where it is impossible to secure the number of pupils mentioned, a three-day packing school may be arranged for with a minimum of eight and not over twelve pupils, at a fee of one dollar per

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By this time you are likely thinking that your strain of bees may be improved some by the addition of this superior strain of Review queens and how you can secure one or more of those superior honey gathering queens as a breeder. We will tell you: They will be sold to none except Review subscribers. If you are a paid-in-advance subscriber to the Review for 1916, we will mail you one of the daughters of those famous queens in June for a dollar. If not a subscriber to the Review for 1916, send $1.75 for a year's subscription to the Review and one of those famous young queens. Those queens are well worth two dollars each, compared to the price usually charged for ordinary queens, but we are not trying to make money out of this proposition, only we are anxious to have every subscriber of The Beekeeper (Canadian postage free), a subscriber of the Review, and we are taking this way to accomplish the object. A few of the very first orders for queens that we receive can be mailed in May, but the majority will not be mailed until June. Orders filled in rotation. Have your order booked early and avoid disappointment.

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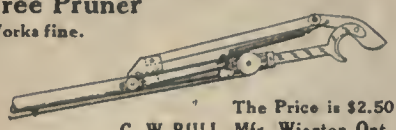

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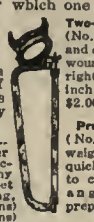

Two-Hand Prunar--(No.777) cuts clean and easy—does not wound the bark--right-handed--26-inch ash handles. $2.00 prepaid.

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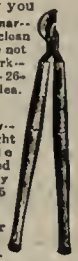

Jointed Tree Trimmar--(No. 4) compound lever head--handle in 4-foot sections--can be made any length desired up to 16 feet--simple, convenient, strong, durable. 8-foot (2 sections) $3 00; 12-foot (3 sections) $3.25; 16-foot (4 sections) $3.50, prepaid. For long pole deduct 50c on each length.

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pupil, to take six lessons of two and a half hours each.

The Department of Agriculture provides the instructor and pays his expenses, supplies packing paper and tables, and bears the cost of fruit and all other legitimate expenses except that of the secretarial work, the rent of the hall, and its heating and lighting. Local fruit is used where possible and the department pays the legitimate market price as determined by the instructor or inspector. At the time of making the application for the packing school the responsible organization is requested to reserve two and a half to three boxes of fruit for each pupil. The harder varieties, such as Ben Davis, are preferred. It need not be graded, but must be in good condition and not smaller than two and a quarter inches in diameter.

In addition to the packing work, modern methods and equipment for packing, packing for exhibition, and the Fruit Marks Act will be studied. Pupils who score 75 per cent. and put up a creditable pack for the department prizes next autumn will receive a diploma certifying to the same from the department.

Pruning Schools Also.

In 1914, the first year pruning schools were offered, twenty-five were held, and in 1915 the number increased to forty-seven. As these schools proved to be very beneficial to the fruit growers, the department has decided to offer them again.

The department will provide a competent instructor, and pay his expenses. The local administration will be placed in the hands of a responsible local body, who will be responsible for the guarantee of a minimum of eight pupils (but not more than twelve), with the proper qualifications, at a fee of one dollar each, to take ten lessons of three hours a lesson, the school extending over five days. Where the number of pupils in a district justifies, two pruning schools may be arranged for, in which the minimum guarantee will be sixteen pupils, and not over twenty-four. The local organization also provides an orchard or orchards, where the instructor may hold the pruning classes, and a hall or room in which the lectures may be held.

Besides the actual practice in the orchard, of which the course will consist chiefly, where the pupils will prune trees under the supervision of the instructor, there will be lectures on the theory of pruning, which will include talks on pruning as related to the formation of fruit buds, and to plant growth, also the subject of top-grafting undesirable varieties will be dealt with, along with many other points of interest. The pupils provide their own pruning tools, the necessary tools being a pair of pruning shears, a saw, and a pocket whetstone.

A well designed Market Wagon that is of ample capacity and suitable for the purpose. Vegetables and fruits may be properly displayed, thus resulting in increased sales and more satisfied customers.

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At the PANAMA PACIFIC EXPOSITION held at San Francisco in 1915

THE BEAN SPRAY PUMP COMPANY

were awarded

GOLD MEDAL ON BARREL PUMPS, GOLD MEDAL ON HAND PUMPS, GOLD MEDAL ON POWER SPRAYERS and the GRAND PRIZE ON POWER SPRAYERS, BY THE INTERNATIONAL JURY OF AWARDS.

REMEMBER, these prizes were won in competition with the whole world in 1915. Not 20 years ago, when Spray Pumps were mere experiments.

These awards prove conclusively that BEAN PUMPS lead the world in POWER—CAPACITY—HIGH PRESSURE and DURABILITY

Over a thousand of Ontario's best Fruit Growers are using BEAN PUMPS, and every one tells the same story of EFFICIENCY.

YOU NEED THE BEST SPRAYER. BUY THE WORLD'S BEST.

WRITE FOR OUR CATALOGUE. LET US REFER YOU TO USERS YOU KNOW.

NIAGARA BRAND SPRAY CO., Limited - - - Burlington, Ontario

Marketing Garden Produce

The conditions under which some vegetable growers display their goods on city markets might be considerably improved with advantage to themselves. Not only are vegetables and fruits shown in great confusion but, in many cases, the market waggons are such as to almost repel prospective customers.

Probably the greatest incentive to purchase is the appearance of vegetables in clean and orderly condition, the market waggon suitable to its use, and personal cleanliness of the owner. The illustration on page 16 shows a suitable market waggon. It is large, and can accommodate considerable garden produce, which can be displayed in an attractive and orderly manner.

As the successful merchant looks to his show windows to attract purchasers, so the successful grower should endeavor to meet his customers under the most favorable conditions.

The Poultry Yard

F. C. Elford, Central Experimental Farm, Ottawa

By January all pullets should be well matured and a good percentage of eggs being laid. See that the house is free from draughts, that it has plenty of fresh air and sunlight. Give plenty of feed and mix the grain ration in a good heavy litter so as to induce exercise. Watch both the cost of production and the selling end, and know whether the flock is paying or not. If you find that it isn't paying it's your fault; others make the hens pay and pay well; so can you if you use business methods.

Care must be taken that the cost of production is not too high. The first step to lessen the cost is taken when we eliminate everything from the breeding stock but that which has the very best constitution. Adopt system in the poultry work. Give it into the care of some one person, rather than allow any person (which very often means no person) to be responsible for the plant.

Big Drop in Prices of FURS AND FUR GARMENTS

No matter where you live or what you or your family want in Furs, or Fur garments, you can buy cheaper and better by dealing direct with us.

It will pay you to send for our Fur Style Book, 1915-16 edition, SENT FREE on request which contains 34 Pages of Illustrations of beautiful furs, and will tell you how you can buy cheaper and better from us under our system of

FROM TRAPPER TO WEARER

When you realize that we are the largest cash buyers of Raw Furs in Canada, purchasing direct from the trapper, you will appreciate the unrivalled opportunity we have to select the finest skins, manufacture them into desirable Fur sets and Fur garments, then by selling direct by mail save you the middlemen's profits.

You will be astonished to see the beautiful Furs you can purchase from us for a little money, every one a gem in its class

This season furs are lower in price than ever before, owing largely to most of the European markets being closed on account of the war, but the stock of Raw Furs in America now is so low, that prices are stiffening up, and it looks to us as if they will advance steadily from now on. You should buy your furs this season *without fail*. Remember our Fur Style Book prices mean goods *delivered to you, as*

WE PAY ALL DELIVERY CHARGES.

Every article is sold under OUR POSITIVE GUARANTEE to "SATISFY YOU OR REFUND YOUR MONEY".

The furs illustrated here are taken from our Fur Style Book, and give you but a faint idea of the numerous bargains offered to you, which are shown in our Fur Style Book. Should the furs shown here meet with your approval, send us their price, and we will ship at once, delivery charges paid by us, and guaranteed to be satisfactory.

No. 112 Muskrat Coat $34.50

No. 113 Muff to Match $5.50

Black Wolf Set $12.75

No. 225 Muff $6.50

No. 224 Stole $6.25

MUSKRAT COAT

112.—This MUSKRAT COAT is 50 inches long, made from evenly matched Muskrat skins in this popular style. This coat is very special value, well made in every way. Lined throughout with good quality brown satin. Deep shawl collar and cuffs, fastens with large crochet buttons and silk loops. Sizes 32 to 42 bust. .....Price $34.50

Same coat 46 inches long ..... Price $32.00

113.—MUSKRAT MUFF to match above coat, in large pillow shape, silk lined, down bed and wrist cord.....Price 5.50

BLACK WOLF SET

This is a beautiful set made from long haired—good quality —whole skins. The stole is cut extra deep and wide over shoulder and back—giving good protection against cold—is trimmed with head and tail over shoulders and tails at each end—lined with good quality satin and warmly interlined.

The muff is made in the large classy pillow style, trimmed with head, tail and paws and mounted on good down bed giving great warmth and comfort—lined with good satin—with wrist cord.

No. 224, Stole....$6.25 No. 225, Muff....$6.50

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Our SPRAMOTOR is a very adaptable machine—one that will benefit you in many ways. It saves orchard trees and row crops with equal certainty, destroys weeds, kills rot, blight, canker, lice, beetles and all parasites.

It throws paint or whitewash on to buildings twenty times as quickly as by hand and does a better job. Used with disinfectant it protects horses and cattle from biting, tormenting flies and lice. A

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It isn't a SPRAMOTOR unless we made it

reduces the percentage of loss in fruit over 80% as shown by **Government tests in 19 different orchards.** Used on potatoes, a SPRAMOTOR has increased a yield of almost nothing to 400 bushels an acre.

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Also Seed Potatoes.

We ship direct to customers. Our new price catalogue will interest you. Note our offers—they are dependable and O. K.—35 years at it. No agents for us.
Early Six Weeks' Seed Potatoes for sale.

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To introduce a high-grade pruning shear at a very low price, we are now offering direct, provided your dealer does not have them, our 25-inch No. 09 1-2 guaranteed pruner at $1.25 per pair, via parcel post, prepaid; cash with order, or ask your dealer for same.

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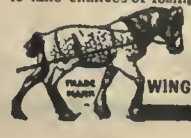

WINGATE CHEMICAL CO., Canadian Distr's, 551 Notre Dame St. W., Montreal, Can.

System in feeding, system in marketing, along with clean sanitary conditions, go a long way to cut down the expense of production.

Every year eggs are scarce and high in price during the late fall and early winter. The only way to have eggs to sell at this time of the year is to get ready in plenty of time. Early spring is the time to prepare for eggs the following November. See that the pullets are hatched early, because it is only the early pullet that will give the early egg. If possible, mate with the healthy hens in the spring, a good vigorous cockerel that comes from a laying strain. Feed the young chicks well throughout their growing period and have the pullets matured early, and put into winter quarters before they are ready to lay, so that they can go right ahead without any interruption.

Market When Ready.—Though there is a good deal of waste in the system of production, there is even more in the methods of marketing. Study the egg market as well as the wheat market, and sell eggs when and where they are worth the most. Of course, the only time to market eggs is when they are absolutely new laid. Market eggs as direct to the consumer as is practicable and market in such a condition that the producer can guarantee the product, and so that he will not be ashamed to have his name appear on every package.

There is no reason why the keeping of poultry should not be more popular in the towns and villages, and even in some sections of the cities. The objection frequently advanced can be traced to two sources: the unsanitary conditions in which a few poultrymen keep their poultry plant, and the presence of nervous or over-sensitive neighbors.

At this time, when so much is being said about the high cost of living, ordinary common sense should lead us not to object to the rooster's early morning greeting.

On the other hand, there is no reason why poultry plants in the limits of the town or city should become a nuisance if ordinary sanitary precautions are taken. It might be a good plan if all towns or cities would appoint a capable inspector who would see that all poultry plants were kept in sanitary condition. There are many city families that could not only provide themselves with new laid eggs, and table poultry, but by keeping a small flock of laying hens, could make use of feed that goes into the garbage can, and might in some instances almost keep the family table provided with eggs and broilers.

It is the summer conditions of the city poultry plants to which most objections are raised. To overcome this, many city and town families follow the practice of buying on the market or elsewhere well matured pullets in October and November, feeding them heavily for eggs throughout the winter and selling or eating them in the spring. This method is to be recommended as it provides eggs when eggs are high in price, turns table scraps into new laid eggs and leaves the back yard for the summer garden with a quantity of good fertilizer for growing vegetables and flowers. In most cases the birds can be sold in the spring for what will replace them with pullets in the fall.

In the case of fruit you may prune, spray, cultivate and practice every precaution in the picking, packing and loading, but just as soon as it passes into the care of a carrying company, be it railroad or steamboat, it rests with them just in what condition the fruit will appear on the market.—G. E. McIntosh, Forest, Ont.

Canadian Apples in South Africa.

W. J. Egan, Canadian Trade Commissioner, Cape Town, South Africa.

The first shipment of apples from Canada for this season arrived on the S.S. Kwarra, October 15. They were all from British Columbia, and consisted mostly of "Wealthys" with some "Gravensteins."

The packing was of the very best and the shipment was healthy, being almost free from scale. The apples were of good size but did not come up to the requirements of the South African market in color, and unfortunately a large percentage of the shipments was frozen in cold storage. The fruit which carried without freezing realized from 15s. to 17s. a box. On the Johannesburg market prices ranged from 19s. to 24s.

This shipment of 1,160 boxes is the first on record to consist of Canadian fruit only. The contention of several jobbers has been the impossibility of securing fruit for the early boats, and many severe comments were made in reference to the recommendations that the cold storage space on our steamers should be reserved for Canadian fruit. Although the above-mentioned shipment was unfortuuate, dealers now admit that a suitable apple can be procured for the early sailings as well as for the end of the season. As they are all prepared to purchase Canadian fruit, they are now advocating that it alone should be carried in the cold storage of Canadian steamers during the limited season of delivery, from October to December 15, which under normal conditions can dispose of 35,000 to 40,000 boxes of a good, hardy, medium size well-colored apple.

Vegetable Packages.

Vegetable growers should endeavor to standardize the packages used for shipping vegetables. While this does not affect the growers in the vicinity of large cities, it is becoming a grave problem for those who ship vegetables from other districts into the large markets of Montreal and Toronto.

It would be a beneficial work if the Ontario Vegetable Growers' Association would gather inforamtion relating to the various vegetable packages used in Ontario. This would enable the growers to prepare to standardize the best packages used.

Items of Interest.

Mr. B. Leslie Emslie, formerly of Toronto, has recently been added to the staff of the Central Experimental Farm, Ottawa, to act as supervisor, under the direction of the Dominion Chemist, of investigational work with fertilizers.

The annual convention of the Nova Scotia Fruit-Growers' Association will be held at Wolfville, January 18th to 20th, 1916. One session will be devoted to a debate on the question of mixed farming versus exclusive fruit growing for the Annapolis Valley.

The United Fruit Companies of Nova Scotia, Ltd., on December 2nd, published the average price that will be paid to all their

Bone Meal for Orchards

Harab-Davies Bone Meal is an excellent fertilizer for orchards. It has a very high percentage of phosphoric acid which is required in producing strong wood growth and forming the blossoms and fruit. It contains, in fact, almost twice as much of this valuable phosphoric acid as does basic slag, and half again as much as contained in acid phosphate. In addition it contains over three and one-half per cent. ammonia, but notwithstanding this, bone meal costs a good deal less than twice as much basic slag or acid phosphate. In truth, Bone Meal is and always has been the very best value for your money of any fertilizer material, and, moreover, is practically the only fertilizer that hasn't advanced in price since last year. Harab-Davies Tankage and Harab-Davies Ground Blood are two other fertilizer materials that are very little higher than last year, and although on account of the higher prices of chemicals

Harab-Davies
Fertilizers

like others, have increased in price—they are still low enough in cost to make it exceedingly profitable to use them freely on the land.

Whatever your fertilizer requirements may be you can have them fully supplied in the complete line of Harab-Davies Fertilizers. You can obtain fertilizers containing up to 3% potash. In fact, no one can do better for you, as regards potash or any other fertilizer requirement, than we can.

Harab-Davies Fertilizers have been tried and tested and proved their worth on farms and orchards all over Canada. They are Made in Canada, factory mixed, and in best condition for handling with least trouble and expense.

Write for the 1916 Harab-Davies Fertilizer Booklet which contains the latest information about fertilizers.

The Ontario Fertilizers, Limited
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STRAWBERRIES Summer and Fall Bearing and all Berry Fruit Plants

We are headquarters for Summer and Fall Bearing Strawberry Plants Raspberries, Blackberries, Gooseberries, Currants, Grapes, Fruit Trees, Roses, Ornamental Shrubs, Eggs for Hatching, Crates, Baskets, Seed Potatoes, etc. The very finest stock at rock-bottom prices! 32 years' experience.

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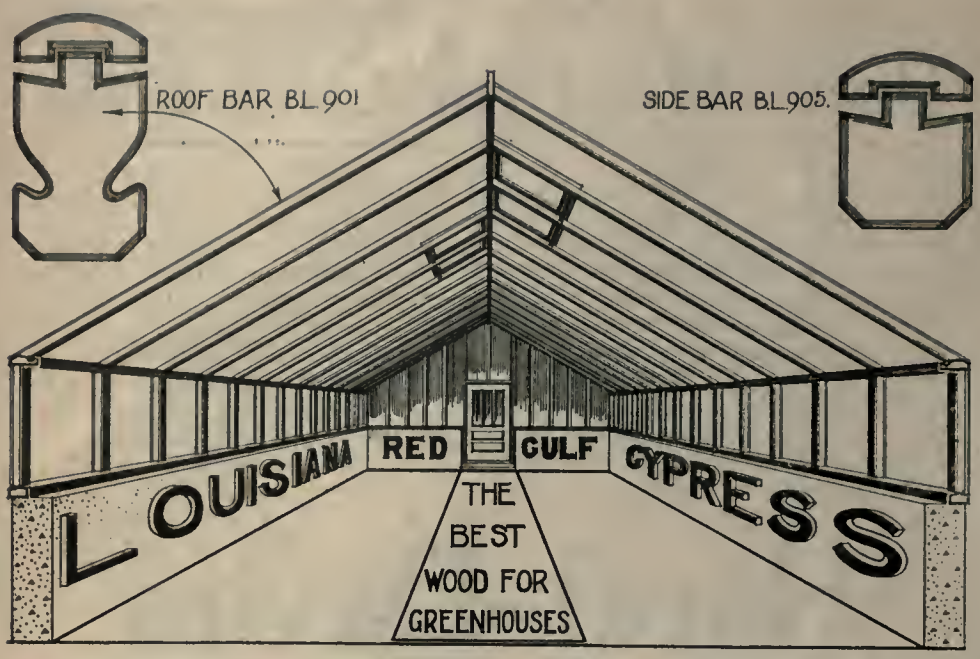

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Our great new Strawberry "Grand Prize," the best Fall-Bearing kinds, and 50 others. Herbert, Eaton, St. Regis Everbearing and other best Raspberries, also Blackberry, Currant, Gooseberry and Grapes.
Splendid stock of Cobbler and Green Mountain Potatoes.

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More Trappers and Fur Collectors send their Raw Furs to us than to any other five houses in Canada. Because they know we pay highest prices, pay mail and express charges, charge no commissions, and treat our shippers right. Result, we are the largest in our line in Canada. Ship to us today and deal with a Reliable House. No Shipment too small or too large to receive our prompt attention.

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affiliated companies on Blenheims this year, as follows:

No. 2, 13,848 barrels	$2.22
No. 2, 3,067 barrels	1.75
Co-operative, No. 3, 2,760 barrels	1.41
Small, No. 3, 2,375 barrels	1.02

The average for ones and twos is $2.13½.

Market Conditions in England.

J. Forsyth Smith, Canadian Fruit Trade Commissioner, Manchester, Eng.

THERE will be no difficulty this season in securing excellent prices for all good Canadian apples, whether in boxes or barrels, provided they can be landed in satisfactory condition. The short crop, high freight rates and steamer space limitations have so restricted supplies that, in Glasgow and Liverpool especially, prices have considerably exceeded early expectations. The demand continues strong and steady, and is regarded by the trade in general as normal, or even better than ordinary. In London there has been a somewhat lessened demand for high-priced fruit on account of the lessening of the number of dinners and public functions owing to the war, while the requirements of a darkened London has also had an adverse effect by reducing the number of theatre parties and similar evening festivities, which are important factors in fancy apple consumption. London is also so near the principal English apple-producing counties that it has been steadily supplied with large quantities of home-grown fruit, and this has had an observable effect on prices, which have been considerably lower than those obtained in the North.

Steamer Space and Rates.

Steamer space seems, if anything, more difficult to secure, and, though particulars are not obtainable from the shipping companies, it is generally expected that ocean rates will be still further increased. Brokers' charges will also be raised.

Apples in Barrels.

Canadian apples, in the main, have been arriving in good condition, with only a normal percentage of slack packs, though many Nova Scotia No. 3's have been badly spotted and wasty. In some cases color has been lacking, and the quality poor or only fair, but reliable shippers have been sending in some excellent stock, and, in general, there has not been much cause for complaint. There is a tendency observable, however, in many packs of Ontario apples to include a proportion of small apples in No. 1 barrels. This is, perhaps, natural.

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OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto Market, we have established branch warehouses with competent men in charge at Sudbury, North Bay, Cobalt, Cochrane and Porcupine. In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

We Solicit Your Consignments

Send for Shipping Stamp

Branch Warehouses: Sudbury, North Bay, Cobalt, Cochrane and Porcupine

H. PETERS
88 Front St. East, Toronto

INTERNATIONAL APPLE SHIPPERS' ASSOCIATION

References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies

in a short crop year, but it is likely to affect the prestige of Canadian apples seriously on the British market.

Reliable Pack as an Asset.

A noticeable feature on the various markets is the premium constantly placed by buyers upon packs which have earned a reputation for quality and reliability. There are certain packers known to the trade generally for the dependability of their output, and whenever these favored "marks" are offered for sale, the brisk demand always results in top prices. It cannot be too strongly emphasized that a pack favorably known to the trade has a definite monetary value, that this carefully built up reputation is a most valuable asset, and that shippers contented to rank as second or third-class packers over a period of years are needlessly throwing away value that a more business-like policy would have secured for them.

Apples in Boxes.

California Yellow Newtowns in boxes are reaching the market in considerable quantities, and have found a ready sale, though, as a rule, their quality leaves much to be desired. The Yakima and Wenatchee districts of Washington have also sent Jonathans, King Davids, Grimes Goldens, and Winter Bananas, very good fruit, and most of which arrived in excellent condition. Some superior Yellow Newtowns from Rogue River, Ore., have also been observed. Arrangements for the placing of these Western American apples are in the hands of agents resident in London, who advise as to the distribution to the various markets. It would appear to be advisable for British Columbia shippers of similar popular varieties, box packed, not to allow their American competitors to secure too strong a foothold on the British market before offering them serious competition. At the present, for obvious reasons, the foreign box apple is far better known to the trade than the Canadian. Nova Scotia and Ontario apples in boxes have been on sale in comparatively small quantities, and are popular with certain sections of the trade. Some large retailers are emphatic in their preference for box-packed apples. As a rule the Eastern box apple does not show the skill and care in grading and packing, the color and general perfection, that have given the Western apple a distinctive place in the market.

Niagara District Notes.

By F. G. H. Pattison, Winona, Ont.

THE weather in the fruit belt has been very changeable. Up to Dec. 10th it was open and mild, and very favorable for plowing, pruning, setting grape posts, etc. After that a nice little winter set in, with about two inches of snow and steady frost. But on Xmas Eve a thaw took place, and Xmas day itself was the most unpleasant experienced in these parts for many years.

On awakening on Xmas morning everything was weeping; the skies, the horses, the trees, and even the soil, sodden with two inches of slush and water, and this condition prevalled during the greater part of Xmas day. To the writer, however, it seemed the most appropriate Xmas possible to this terrible war year of 1915. How many million hearts the world over are weeping now, as they never wept before? And is it not befitting that nature weep also? "Rachel weeping for her children and refusing to be comforted, because they are not."

On Dec. 4th last, the first annual meeting of the Lincoln and Welland Vegetable and Fruit Growers' Association was held in the County Buildings, St. Catharines.

There was a fair attendance of members. R. H. Crow was unanimously re-elected as President; L. Moyer, of Welland, as Vice-President, and W. F. Mitchell, as Sec'y.-Treasurer. The old committee was re-elected. Many matters of particular interest to fruit and vegetable growers were discussed, of which the tomato question occupied the most prominent place, as it was on account of the poor price offered for tomatoes last year by the canning factories, that this Association was formed. The feeling of the

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is easy work for the man who knows how to put into practice the latest up-to-date methods of selection, planting, protecting, pruning, harvesting, and marketing. Prof. Sears, the manager of an active, profitable orchard company, gives the facts you must know and in such a way that you easily understand them and quickly put them into practice. You cannot afford to make the experiments that have resulted in the making of this book but you can afford to spend $1.50 and obtain all the knowledge.
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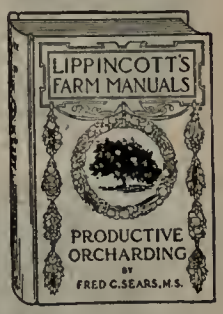

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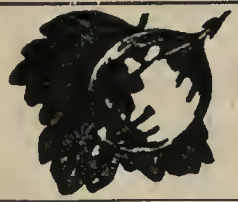

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meeting was that the canning companies had so improved their positions, that it was felt that they would offer this year the old price of 30 cents per bushel, in which case there would be growers willing to contract. The President intimated in closing that the next meeting would be held on the first Saturday in January, and that a special speaker would be secured to address the members.

A meeting of the shareholders of the St. Catharines Cold Storage Co., Ltd., was held in the County Buildings on Wednesday, Dec. 22nd. After the meeting Mr. E. Smith, of the Grimsby Pre-Cooling Plant, gave an excellent address on "The Pre-Cooling of Fruit for the Western and other markets."

Mr. Geo. Baxter of the G. T.R. was also present for the purpose of discussing the matter of transportation, especially with regard to shipping arrangements for the coming season. A number of suggestions were made by the growers, most of which were promised consideration.

The first meeting of the Niagara Peninsula Fruit Growers' Association for this winter is to be held in the County Buildings, St. Catharines, on Dec. 30th, at which a full report of the advertising and publicity committee will be presented; also the question of the standardization of fruit packages, and some amendments to the "Fruit Marks Act," will be considered.

Early in December, J. B. Fairbairn, of Beamsville, left for a tour of Western Ontario, to secure pointers from the books of the different Co-operative Apple and Fruit Growers' Associations, in order that in the future the important details of organization, bookkeeping, etc., may be at the disposal of the Ontario Department of Agriculture, to be embodied in a pamphlet for the benefit of companies yet to be formed.

By the will of the late Mr. M. F. Rittenhouse, of Chicago, the trustees of Union School Sections No. 1 and No. 2, Clinton Township, are given $20,000 in trust. This is to be invested and the income applied to the maintenance of the Rittenhouse Public Library, Victoria Hall, and the grounds and buildings belonging to the School Section.

That all is not yet complete harmony between the Canning Co.'s, is evidenced by the fact that an action has been entered at Osgoode Hall on behalf of the Canadian Canners, Ltd., the new Holding Company, against the Trent Valley Canners Co., of Trenton, for $50,000, and against the Frankford Canning and Preserving Co., of the same place, for $50,000. These amounts are claimed for breach of contract.

Quite recently head office officials of the Dominion Canners, Ltd., have stated that the markets are at present strong, with a possibility of a large export demand, especially for tomatoes. They point out that prices in the United States for tomatoes, corn, and peas, are well up to Canadian prices; in fact, where quality is taken into consideration, they range higher. That is to say, as regards the export business, Dominion Canners will not be handicapped by having to compete with the lower-priced American lines. From this it appears as though the outlook for the Dominion Canners' should be brightening up, and it looks as though the company has a better chance now to make profits.

Early in December there died in Oakville, Alexander Robertson, a pioneer in one branch of fruit industry. Mr. Robertson settled in Oakville in 1830, and engaged in fruit growing, being one of the first men there to grow strawberries in large quantities for the market. He began shipping them in 1850. Mr. Robertson was born in Sterling, Scotland.

10-15-20

Years from now the Bissell Silo will be giving good service. It is built of selected timber, treated with wood preservatives, that prevent decay. It has strong, rigid walls, air-tight doors, and hoops of heavy steel. Therefore it lasts, simply because it can't very well do anything else. Our folder explains more fully — write Dept. N.

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See advt. also on page 14.

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According to Mr. P. W. Hodgetts, Chief of the Ontario Fruit Division, Ontario cannot hope to compete with British Columbia and the Western States in the production of high class apples for show purposes. These showy apples are produced in an irrigation country. "We can't grow the splendid Spitzenbergs and Jonathans here that they do," says Mr. Hodgetts, "and so it is natural to expect that they will continue to hold that trade."

The Canadian Club Fruit Campaign Committee, which has already shipped from this district, including St. Catharines and Niagara Falls, Ont., 53,000 quarts of canned fruits for the Canadian soldiers in the overseas hospitals of England and France, is now engaged in a campaign to secure dried fruit to be forwarded directly to the men in the trenches. A case of fruit prepared for the soldiers is also being made ready for presentation to King George. A case of a dozen jars will also be sent to the Canadian High Commissioner's office in London, England, to be placed on exhibition, through the courtesy of Sir George Foster, Minister of Trade and Commerce.

The following letter from Miss Strong, Hospital Matron No. 2 Canadian Stationary Hospital, Boulogne, France, speaks for itself: "The Secretary, Canadian Club, Hamilton, Ontario.

"Dear Sir,—Please accept my sincere thanks on behalf of No. 2 Canadian Stationary Hospital, for the delicious fruit which came to us yesterday through the Red Cross Commissioner, Canadians. We have a number of Canadian patients here at present, and they were delighted at the thought of fruit grown and preserved at home. Signed, Sincerely Yours, Annie C. Strong."

The Beamsville Preserving Company is steadily receiving orders for canned goods of all kinds, and expects, if the rush keeps up, to have its big warehouse pretty well emptied by spring. The cleaning out of the various canning factories will be hailed with delight by the growers, in view of the conservative buying the past couple of seasons by the factories, which were overstocked.

A most important improvement has been accomplished at St. Catharines in the completion of the new steel viaduct over the old Welland Canal, connecting St. Catharines with the West, at a cost of $155,000. This was opened for traffic on Dec. 20th last.

Recently there passed away at Dulverton Fruit Farm, in the Township of Niagara, Mrs. Lavina Fisher, widow of the late Charles Fisher, and mother of Mr. Carl C. Fisher, County Registrar, St. Catharines, and Secretary of the Niagara Peninsula Fruit-Growers' Association. Mrs. Fisher was a daughter of Hamilton Goring, and was born in Niagara Township, Nov 18, 1832.

A case of considerable importance to fruit growers was decided recently. Mr. W. F. Geddes is a fruit grower at Grimsby. He had his products shipped by rail to Cobalt, and he himself sold from the car on the tracks to all comers. The town of Cobalt charged him with breaking the transient trader's by-law, but the magistrate found in his favor on the ground that he was selling the produce of his own farm. Cobalt appealed the case, but Chancellor Boyd gave judgment in Geddes' favor, on the ground that the Act did not apply to a farmer selling his own product.

A report from Grimsby says that tomato growers are looking for the old price of 30 cents a bushel again next year on account of the cleaning out of the canning factory

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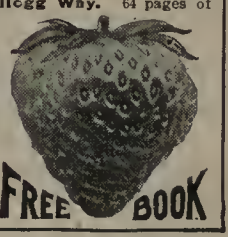

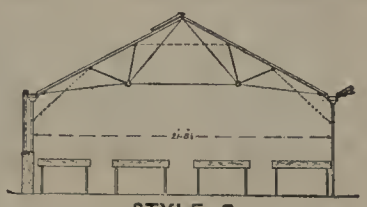

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stocks throughout the district. War orders for consignments of canned goods are steadily growing.

According to a United States Government report New York State alone lost many millions, through low prices, on its peach crop of last season. Had our markets been open to the New York State growers then our Niagara District growers would have known what low prices meant.

Alleghany County farmers, N.Y., lost $800,000 this year owing to the almost total failure of the potato crop. Farmers who raised as much as 5,000 bushels last year, had to purchase for their own use this. Most of them neglected to spray their potato vines this year, with the result that the crop was destroyed by blight.

Ontario Fruit Growers' Convention

The following is the program for the annual convention of the Fruit Growers' Association, to be held in the Hotel Carls Rite, Toronto, January 19, 20 and 21.

Wednesday, January 19th: 10 a.m.President's address, Elmer Lick, Oshawa. Transportation report, G. E. McIntosh, Forest. Historical Committee report, A. W. Peart, Burlington.

2 p.m.—**Packages:** Berry Crates and Containers, J. B. Fairbairn, Beamsville. Economy Crates for Apples, J. W. Clark, Cainsville. Baskets, F. M. Clement, Vineland. Boxes and Barrels, C. W. Baxter, Fruit Inspector. Questions on Tender Fruits.

Thursday, January 20th: 9.30 a.m.—**Marketing Tender Fruits:** Amalgamation in Niagara Peninsula, J. R. Hastings, Winona. The Advertising of our Tender Fruits, W. H. Bunting, St. Catharines, and T. B. Revett, Niagara-on-the-Lake. Results of the Precooling Experiments at Grimsby, Edwin Smith, Grimsby, and J. M. Creelman, Grimsby. Questions on Tender Fruits.

2 p.m.—**Fruit Marks Act:** What Constitutes a No. 2 Apple, D. Johnson, Fruit Commissioner, Ottawa. Shipping of Immature Fruit, Fred Carpenter, Winona. Grading of Basket Fruits, F. M. Clement, Vineland. Questions on Apples.

Friday, January 21st: 9.30 a.m.—**Marketing Apples:** The Co-operative Fruit Growers of Ontario, Ltd., Elmer Lick, President, Oshawa. Better Net Returns for Local Associations, Dr. A. J. Grant, Thedford, and C. F. Howard, Hagersville. Members' Difficulties, A. E. Bellman, Bowmanville, and J. S. H. Guest, Oakville. Questions on Apples.

2 p.m.—Marketing Problems, R. M. Winslow, British Columbia. Are Ontario Apples Only a Second-Class Product? Gordon Furrow (Globe). The Leaf Rollers, L. Caesar, Guelph.

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The Canadian Horticulturist

Floral Edition

Vol. XXXIX PETERBORO, FEBRUARY, 1916 No. 2

The Fruit-Tree Leaf-Roller

Professor L. Caesar, Provincial Entomologist, Guelph, Ont.

THERE are two moderately common leaf-rollers that attack fruit trees, especially apple and pear trees, in Ontario. One of these is known as the Oblique-banded Leaf-roller from

Moth of the Fruit-tree Leaf-roller; the larger one is a female, the smaller a male. (Both natural size.)

two broad bands that run obliquely across each of the front wings of the adult moth, and the other the Fruit-tree Leaf-roller. The former of these insects, though found in almost every orchard, has not to my own personal knowledge ever caused any appreciable amount of damage. The same has been true of the latter species until about three years ago. Up to that time it had evidently been kept in check by parasites, diseases or other factors, but for some unknown reason these controlling forces have of late become weakened so that this insect is now one of the most destructive fruit pests and one of the most difficult to combat.

This is not a new pest. It occurs from one end of the province to the other, but fortunately up to the present has, so far as the writer can tell, been very abundant, and, therefore, very destructive in only three orchards. One of these is situated near Trenton, another near Hamilton, and the third near Simcoe. In the first of these approximately 50% of the fruit during the last two years has been either destroyed or rendered culls. In the Hamilton orchard the loss has not been nearly so great, with the exception of a few trees which suffered severely. At Simcoe from 40 to 50% of the apples, as nearly as one can judge, were injured in the infested part, about 10 acres, of a large 60 acre block of apples.

A peculiarity of the insect is its habit of centering its attack upon a single orchard and scarcely doing any damage to neighboring orchards. Sometimes it will, as in the case of the Simcoe orchard, attack severely not the whole orchard, but only a certain portion of it. From this peculiarity one feels hopeful that the great mass of the orchards in the province may escape severe attack even though a considerable number should become badly infested.

Ontario is not the only province or state troubled with this insect. During the last few years it has become a source of worry to fruit-growers in New York and several other states. It has been troublesome for many years in Colorado, but is gradually becoming of less importance there. I feel sure that since it is not a recently imported pest that in Ontario the forces which have kept it in check in the past will in a few years again gain the upper hand and reduce it to a position of insignificance. In the meantime it is well to know something about its life-history, habits and means of control.

Description of Adult and Larva.

The adult is a small moth about half an inch long when the wings are closed, but with a wing expanse of nearly an inch when these are stretched out. The upper wings are a rusty brown, with several silvery white markings, the hind wings are a light ashy brown without any markings. The larva, when full grown, is a somewhat slender caterpillar nearly an inch long, and of a pale, yellowish green color with a black head. They are usually to be found concealed in a leaf loosely rolled up. When disturbed they quickly wriggle out of the leaf, and drop down on a silken thread. When danger is past they crawl up by this thread to the tree again.

The Oblique-banded Leaf-roller larva looks very much like this one, and

Egg clusters of Fruit-tree Leaf-roller on apple twigs; the whitish ones to the right have hatched, the others are unhatched. (Natural size.)

Full-grown larvae of the Fruit-tree Leaf-roller. (Natural size.)

has the same habits, but is, as has been said, seldom at all abundant.

Nature of the Injury.

The larvae of the Fruit-tree Leaf-roller attack the leaves, fruit-buds, or blossoms, and also the fruit. The attack on the leaves begins about the time they begin to open. At this date the little larvae have just hatched out of the egg. They at once work their way in among the unfolding leaflets, fasten them together with a few silken threads and feed upon the inner tissues in this sheltered position, where it is clear one cannot reach them with a spray mixture. As the leaves get larger they roll them either up or down, but usually up, keeping them in this position by a little silken web. In these they feed, often eating holes right through them or devouring part of the top or base. The fruit buds are often bored into and destroyed and, when the blossoms have opened, these are often webbed together, and some of them destroyed.

Once fruit begins to form the caterpillars prefer it to anything else, and, coming out of their hiding places, they eat holes in it. These holes frequently extend to the core, but often do not go so deeply. The worst injured apples drop; the rest remain on the tree, but are deformed and seldom are good enough to grade as anything but culls. It is by the attack on the fruit that the chief injury is done.

Pears often suffer severely; plums are also subject to attack, but so far the chief injury has been to apples. The pest is not confined entirely to fruit trees, as it also feeds and breeds to some extent on forest trees. In the orchard the caterpillars will, where there are weeds or clover, drop down in large numbers and feed on these, but we have never found eggs on any of these plants but only on trees.

Brief Life-History.

At this time of the year (January) the insects are in the egg stage. The eggs are laid in small clusters and nearly always on the upper side of two or three year old twigs. This is the place to hunt for them. The clusters are, as seen in the photo, about one-quarter of an inch or less in length, and are oval and dark brown in color. After hatching they soon become nearly white, and show the little holes out of which the caterpillars come. Eggs do not begin to hatch until the leaf-buds have started to burst. Hatching, however, continues for nearly a month, especially if the weather is cool.

The young larva attacks first the opening leaflets, then the larger leaves, fruit-buds, blossom and fruit. About the middle of June they begin to be full grown, and by July 1st moths may be seen in the orchard. During the day the moths conceal themselves among the foliage, but if the branches are shaken they will rapidly fly out with a zig-zag motion and usually go down into the grass or weeds to hide. Late in the evening they begin to fly around, mate and lay their clusters of eggs on the twigs. The last of the moths is usually dead by the end of July, and as there is only one brood, the insect from July to the next May remains in the egg stage.

In our study of this insect we found that there were several kinds of parasites that attacked it, both in the larval and pupal stage. The larvae were also subject to disease. Birds and predaceous insects destroyed some, but it was clear that all these forces combined were not at present sufficient to keep it in check.

Means of Control.

Anyone who has ever seen the tattered foliage, and the holes eaten in the apples would think that all that was necessary to control this biting pest would be to spray the trees a couple of times with arsenate of lead while the injury was being done. I also had great hopes of success by this method, but, when I tried it I found that arsenate of lead, no matter when or how carefully applied, did not kill more at the most than 50%. It often did not seem to destroy even that many. The reason for this is that although the larvae will die, if they eat the poison while they are still small, yet their habit of feeding inside the little webbed leaflets prevents most of them from getting any of the poison on their food, and later on when they are half an inch or so in length they seem to be able to eat the poison and not be killed. Arsenate of lead does kill some, however, and we strongly advise any one troubled with this pest to give the tree two applications of arsenate of lead (4 lbs. to 40 gals. of dilute lime-sulphur or bordeaux mixture), the first application being just before the blossoms open and the second just after they fall. These are two of the regular sprayings that every apple and pear orchard should receive even if this pest were not present. Both sprayings should be thorough and every leaf, if possible, be covered both from above and below.

The Best Remedy.

Scalecide is a miscible oil spray, manufactured by The B. G. Pratt Co., 50 Church Street, New York City. It costs about $30.00 per barrel, and should be used at a dilution of 1 gal. to 15 gals. of water, so that one barrel will make 16 barrels of spray. When diluted the spray looks like milk, and is easy and pleasant to use. This or some other good miscible oil is the only substance yet known that will give real good results against the pest. The mixture must be applied just before the leaf-buds burst in spring, and at that date will destroy the eggs or prevent their hatching, but will not do so if applied in the autumn. Great care, however, is necessary to see that every egg mass is thoroughly wet; a mere light mist spray will, therefore, not do.

In order to save material and make the spraying easier badly infested trees should be severely pruned and the tops, if very high, lowered. In spraying we must keep in mind that the eggs are laid on the twigs, and not on the branches, hence the former must be carefully sprayed while the latter, unless there is San Jose Scale present, may be disregarded. It is very difficult to cover every twig, and so one should examine his work as he goes along and see that this is being done. A strong wind or high pressure to force the spray right through the tree helps greatly. The stronger the wind the better.

Cultivate.

Many larvae were found feeding on weeds, clover, etc., and also many pupae on the ground; hence we believe that good cultivation and discing throughout June would destroy many larvae and pupae. The last discing should be as deep and as late as is safe for the district. In some districts this would be about the last week in June, in others not until about July 10th.

Where fruit-growers have many chickens, these could be kept in the worst affected portion of the orchard, and would destroy great numbers of the larvae as they dropped down on their silken threads, or pupae whenever these were on the ground or on weeds, but poultry would give best results where the orchard was cultivated because they then would see the insects more easily.

Orchards Sprays

A. W. Cook, Guelph, Ont.

THE successful horticulturist of today has more to contend with than those of some few years ago. New insects and fungi have come to combat his efforts, and naturally such conditions have forced the fruit grower to experiment with modern appliances, leading sprays, and resort to putting into practical experience better methods of spraying and a thorough understanding of what to spray for, what to spray with, when to spray, and the results of thorough spraying methods. If he were to neglect spraying "the most important" of the factors which determine success in horticulture, his adventure in fruit growing is more than apt to spell disaster, not only on his part, but upon those who live about him. The key note of success in fruit growing is thorough, efficient spraying.

Spray materials are divided into two classes:—fungicides and insecticides—the former being used to control such diseases as scab, bitter rot, powdery mildew and brown rot. These are fungus diseases and are tiny plants, but live upon other plants. Fungicides are also used to control San Jose scale and Oyster scale, also a few minor insects. Insecticides are for the plant's protection against such insects as the bud moth, codling moth, and aphis; these being the most serious insect pests which we have.

There is no small amount of difference in the estimation of fruit growers with regard to the relative value of our two well-known fungicides, lime sulphur and bordeaux. Both of these have their strong advocates, but the happy medium is found to be a combination of the two. This opinion is firm with many of our leading authorities, and is being upheld with an increasing number of practical men who have proven it to be best to their own satisfaction. It is true that with some of our orchard fruits individual fungicides have proven to be superior over the others, but we find in our apple orchards that the combination of using lime sulphur for our dormant spray, bordeaux for our second spray, and lime sulphur for the succeeding sprays, will prove to be more efficient in controlling not only the apple scab, but also produce apples free from rust. Many years, when lime sulphur was used for the second spray, it left our apples with a russety coating, which was objectionable at packing time. The result was that many apples had to be discarded on this account. Lime sulphur is more efficient and more practical in most instances with all our orchard fruits. However, bordeaux can be used more successfully in the control of rot in sweet cherries than lime sulphur, because of the fact that it may be applied at later dates after the fruit has set, while if lime sulphur was used it would stain the fruit.

Arsenate of lead has been found to be more efficient as an insecticide than Paris green in controlling leaf-eating insects. It is mixed more readily in solution and is more convenient, besides being a great deal more effective. However, it will not control sucking insects such as aphis. To control insects with such habits, we must resort to insecticides which will cover their bodies, and so block their breathing organs, or eat their bodies and so destroy them. Black Leaf Forty is most suitable, this being in a very convenient form to use to destroy such insects.

The three chief units in spraying are —spray in time, spray thoroughly, and know why you use a certain spray and the results from their use.

The size of our orchards should be understood, because of the necessity of completing our spraying in the proper time. A few days late, with an inefficient machine, will cost more than an outfit of the proper size. Where one has an orchard of from five acres up, a power outfit is almost a necessity. Unless one has all the help that is required to apply thoroughly, the spraying is apt to be only a partial success. One must always keep in mind that spraying must invariably be done at the proper season, especially where fungi is to be controlled, and there is no better insurance against a possibility of not being able, than an efficient spray outfit which is capable of spraying more trees than you have in your own orchard. When one is a little behind in his spraying, it is a general rule that the orchard does not receive a thorough spraying. The results from such spraying are not encouraging to others.

Thorough spraying means clean fruit, of a more saleable quality. To ensure thoroughness, one must have pressure behind the material which has been intelligently prepared. Spray with at least 150 lbs. pressure. This means that the uppermost limbs may be thoroughly covered, and it also means that our insecticides are driven into the calyx of our fruit. The importance of this cannot be overestimated. One must spray so that the mixture will drop from the limbs of our trees. It is best by far that we apply more than what is really necessary, rather than an insufficient quantity. The orchardist who trys to save on his spray material will invariably fall short at packing time. Beginners should apply until it drips, and with experience they will learn just what amounts are really necessary.

The importance of knowing one's materials, so that he may mix them to produce the best results, is great. It is of no material value how well the spraying has been done, so far as controlling fungi and the various insects, unless one has his spray properly and thoroughly mixed. While it is possible to deviate from set formulas to a small extent, it is always advisable to adhere to the regular proportions as have proven to be most satisfactory. These are to be had in the form of a regular

Work of Fruit-tree Leaf-roller on young apples. (Natural size.)

Spraying operations in an Ontario orchard. These trees need pruning.

calendar issued by the Department of Agriculture, of Toronto, and should be in the hands of every person who sprays. Always have at your disposal a hydrometer and a set of scales—two very necessary assets towards successful spraying.

Apples, pears, and fruits of a like nature, require a dormant spray to control all scale insects. This is best applied just before the leaf buds begin to burst. However, it may be done some few days ahead of this time, or as the buds are bursting. With the peach, however, the best results are to be obtained if the spraying is done just before the buds have begun to swell. This spray is to control leaf curl. The strength should be 1.032 to 1.035 for the lime sulphur wash. If one were to use weaker solutions, good results are not often obtained.

The second application for apples and pears should take place just as the fruit buds are showing a pinkish tint. This spraying is of great importance in controlling the apple scab, bordeaux being used. To it we add arsenate of lead at 2½ to 3 lbs. for every 40 gallons of diluted spray, to control bud moths and some minor insects. If peaches require a second application for the control of plum curculi, 2 to 3 lbs. of arsenate of lead can be used alone. This is applied when the fruit is one-third of an inch in size, and if it is deemed advisable to spray for brown rot, a solution of self-boiled lime sulphur may be applied about four weeks after the blossoms have fallen.

The third application should be applied when 90% of the blossoms have fallen. No time must be lost, because the poison must invariably be forced into the calyx end to control the codling moth. Use lime sulphur at a strength of 1.008. If bordeaux is used it will cause russeting of the apples. Apply very thoroughly in the case of apples to control the scab. If after a lapse of ten days the weather is cold and wet, it is absolutely necessary to apply a fourth application in the case of apples. Such weather is conducive to a fresh outbreak of the scab, especially on the Snow's and McIntosh. Apply the same mixture as in the third application, however, leaving out the poison. A fourth application should invariably be given in the far eastern counties along the St. Lawrence River.

Fall Conditions.

Towards the middle of August to mid September, cold weather is apt to cause a renewed attack of apple scab. In the fall of 1914, many sections of Ontario experienced just such weather. Fruit which was practically free from such scab became infected, not only on the calyx end, but on the stem. For this apply the same strength of lime sulphur as used in the third application.

The Department Spray Calendar and Bulletin 198, should be in the hands of every fruit grower. By frequently consulting them one may prepare his own fungicides. The directions for making the same are found therein. The cost when one prepares his own spray material means a saving of about $2.00 to $4.00 per barrel, all depending upon the facilities for boiling.

The fruit grower who sprays most thoroughly produces his crop at a greater reduction in cost than the man who plays at spraying. He has a greater quantity of higher quality, hence the larger number of barrels which he can place upon the market. Years of small prices, such as we are experiencing, make it imperative that we cut our operating expenses, so long as it is in keeping with approved methods. A few dollars invested in additional spray material will pay greater dividends than most men are aware of. The fruit grower may spend money in the pruning and cultivation of his orchard, aside from the interest on his money, rent of land, etc., and then by careless management at spraying time, practically throw away the possibility of high returns from his investment by using unintelligently prepared sprays, applied without the knowledge of why you spray.

If spraying is done methodically in conjunction with the purpose to produce clean No. 1 fruit, the fruit grower should overcome small returns. This is a day of "quality," and spraying produces in its highest perfection. Spray on time, spray with pressure, spray with a purpose in view, and other things being equal, a good dividend will be assured to the fruit man from the sale of high class fruit.

Pruning Peach Trees

Jas. Marshall, Hamilton, Ont.

Peach trees require more pruning than almost any other tree. The main limbs should be allowed to branch out near the ground. Do not have the trunk of the tree between the limbs and the ground more than one foot or one and one-half feet long. I prefer to have the trunks shorter than this, as you can then have a low-headed tree, if you keep the tops cut back. My plan is to begin to thin the limbs, and open out the centre of the tree and leave it vase-shaped, so that the sun can shine into the tree. Do this any time in the winter, when the trees are dormant. Towards spring, say in March when danger of bud freezing is over, cut back the previous year's young growth severely if the buds are good, as there are often too many good buds, and if too many are left the peaches will not likely be large. Thinning fruit is necessary where there is too much fruit on trees, in order to have a good sample.

We spray our peach trees thoroughly as early as we can in the spring with home-boiled lime sulphur. I am not finding fault with any other spray. The chief thing is to get the spray on while the buds are dormant. We finished our first spraying last spring in March. The work was done on fine sunny days when the ground was frozen. By doing it then, we did not cut up and tramp hard the heavy clay soil, it was easier on the horses to draw the hand and power sprayers, and it prevented curl-leaf almost entirely.

The Control of Fruit Insects, With Special Reference to Nova Scotia

G. E. Sanders, Field Officer in Charge Dominion Entomological Laboratory, Annapolis Royal, N. S.

THE day when entomologists and plant pathologists laid down rules for spraying, and the control of insects which they considered applicable for a continent, is long past. The more the life histories and habits of insects and diseases are studied, the less are experts inclined to recommend treatments for districts outside those in which they have conducted experimental work or made careful observations. The making of blanket recommendations, supposed to be applicable to all conditions, has in the past been a frequent source of embarrassment, loss of confidence in experts and financial injury to the farmer or fruit grower following such recommendations.

To-day the expert knows that climatic conditions may cause unequal variations in the various periods of plant growth, which in turn may react in a different manner on each insect feeding on that plant. The life histories and habits of insects may vary with, or as sometimes happens, without any apparent change in weather conditions. Again the varieties grown in different localities are usually not the same, and varietal susceptibility is one of the things to be considered in recommending treatments. The tendency is now to have each insect or disease investigated locally, and local recommendations made therefrom, by this means effecting a saving to the farmer or fruit grower, either in material for treatment or in efficiency of treatment, as well as gain in prestige of the expert both as an individual and as a class.

The investigation of apple insects in Nova Scotia during the past four years has demonstrated the value of the study of local insects under local conditions in a striking manner.

First, in regard to the growth of the apple tree, in relation to the budmoths, which are the most destructive insects attacking the apple in Nova Scotia: in 1915, a period of twenty-four days elapsed between the time the first Gravenstein buds began to show green until they were out in full bloom, or from May 11 to June 4. The bloom in Gravensteins lasted six days, or from June 4 to June 9 inclusive. The period of emergence of budmoth larvae from their winter quarters covered a period of fifteen days, or from May 9 to May 23 inclusive.

It is not an unusual occurrence in Nova Scotia for the buds to start and the leaves to become, say, one-half inch across, and then a period of cold or rainy weather set in and hold the trees in practically the same condition for a week or ten days, insect life during such a period not being retarded to the same extent as the trees. A study of these dates easily accounts for the budmoth reducing the set in blossom clusters infested, by seventy-five to eighty per cent. in Nova Scotian orchards. They also show the futility of depending on a spray applied just when the buds are beginning to show green at the tips to control budmoth.

In order to control budmoth we must find a means of getting poison to it after the bud has opened, and when some of the budmoths have drawn a cluster of partly eaten leaves about themselves. In this regard the Friend Drive Nozzle has proved our salvation. It has, in every case where it has been used, given greater control of budmoth than the mistry, whirlpool and calyx nozzles, against which it was tested; and where used twice before the blossoms in 1915, the first time on May 15 and the next on May 31, with of course two applications after the blossoms, gave us the greatest control of budmoth we have ever obtained, namely ninety-two per cent. of the larvae, which would normally become adults, killed. The poison used in this case was paste lead arsenate. The value of this nozzle in budmoth control lies in the high nozzle velocity of the spray, which when it strikes the clusters of leaves gathered together by the budmoth, does not settle on the outside without wetting the inside as the fog and mist sprays do, but drives in through the chinks and crevices of the cluster of leaves, thoroughly coating the inside of the cluster with poison.

The biting insects ranking next in importance in Nova Scotian orchards are the fruit worms, of which there are upwards of a dozen species, the most common being Xylina bethunei. We have found that the life histories of the various species are very similar; the eggs, which are mostly deposited singly on the twigs of the apple, begin to hatch just when the Gravenstein buds begin to show pink, but owing to the cool springs of Nova Scotia the period of emergence is long drawn out, the last of them hatching one month later. During the first two weeks of their existence as larvae, they feed on leaves and blossoms, later feeding mostly on the young fruit. When feeding on fruit they are very hard to poison as they eat so little surface for a meal. The control of fruit worms lies in having the leaves coated with poison during its period of emergence, or by applying poison in a spray when the buds are showing pink, and in another immediately after the blossoms. These two sprays will give on an average sixty-five per cent. reduction in injury to the picked fruit.

In 1915 it was thought that on account of the tendency in the larvae of the fruit worm to drop to ground when disturbed, that the mechanical effect of the drive nozzle in disturbing the leaves might increase control to a certain extent. To prove out this point, two plots were sprayed with water, one with the drive and one with a mist nozzle and two left unsprayed. Where

A dust sprayer at work in a New York State orchard. This form of spray has been giving unusually good results across the border.

The residence of Mr. F. H. Johnson, of Bridgetown, N.S., and a portion of the apiary which plays an important part in his orchard operations. Note the article on this page.

the water was sprayed on with a mist nozzle, five per cent. of the apples were injured by fruit worms; where water was applied with the drive nozzle 2.25 per cent. of the apples were injured, and where the trees were not sprayed, the injury amounted to 4.1 and 4.25 per cent. respectively. In six of the seven comparisons that we had in 1915 between the drive and the mist nozzles in fruit worm control, the use of the drive resulted in the fewest apples injured. In the seventh there was no difference.

The Codling Moth.

Turning now to the Codling moth in Nova Scotia: for some reason it is an insect of very minor importance, the greatest infestation recorded for the year being from an unsprayed plot, where 1.7 per cent. of the apples were found to be wormy. As far as we have been able to ascertain, it is single brooded in Nova Scotia. There is only two per cent. second brood in Maine, where the season is both longer and warmer than Nova Scotia. In view, therefore, of the fact that the Codling Moth is of so little importance in Nova Scotia, the first spray after the blossoms may be advanced or retarded as desired, with little or no injury to the fruit crop on account of Codling Moth. This is supported by the fact that the spray applied immediately before the blossoms controls 71.3 per cent. of the Codling Moth, the spray after the blossoms alone controls 89.2 per cent., while the spray two weeks after the blossoms controls 65.6 per cent. This shows that the life history of the Codling Moth is drawn out over an enormous period in Nova Scotia and that it feeds extensively on the leaves before entering the fruit, thus minimizing the already small importance of the spray immediately after the blossoms in Codling Moth control.

These notes on three groups of insects, in all something less than 17 species, go to show that the control of certain insects is somewhat different in Nova Scotia from their control in other parts of North America. The relative importance of the three in their relation to one another is also somewhat different. With 1.7 wormy apples, the highest infestation of Codling Moth recorded, we have in Budmoth a high infestation of 96.4 per cent. of the fruit buds in the spring, which resulted in a 72.3 per cent. reduction in the total set of fruit as well as an average of 40.5 per cent. of the picked fruit from the unsprayed plots in the same orchard injured by budmoth. In Fruit Worm we have this year a high infestation of seven per cent. of the picked fruit injured, which means 14.4 per cent. of the apples in that plot had dropped during the season as a result of fruit worm injury, or a total injury of some 21.4 per cent. of the total set by fruit worm.

The Apple Curculio has not, so far as I am aware, been recorded from the province, nor has the Lesser Apple Worm.

The Falise Tarnished Plant Bug, Lygus invitus, which is being investigated by Prof. Brittain, does thousands of dollars worth of damage annually, but in Ontario Prof. Caesar regards it as an unimportant species. The Apple Maggot, while present, has not yet affected the main fruit areas, and the San Jose Scale, thanks to the vigilance of the Provincial Entomologist, is not at present known to exist in the province. I mention these to show how different spraying conditions are in Nova Scotia from other apple growing sections, and the importance of investigating the problems of each locally.

A Nova Scotia Grower's Methods

A description of the methods of orchard practice which have enabled Mr. F. H. Johnson, of Bridgetown, N.S., to obtain an average profit of one hundred dollars an acre from a reclaimed orchard appeared in the August, 1915, number of The Canadian Horticulturist. A further account of Mr. Johnson's methods may prove equally interesting.

"For a spray, I used to use poisoned Bordeaux," said Mr. Johnson to a representative of The Canadian Horticulturist some time ago, "but now I use only lime sulphur with arsenate of lead. I boil my own lime-sulphur, using steam for boiling. With a test of 30 (Beaume), I dilute one gallon of lime-sulphur to thirty-one gallons of water, and mix five pounds of arsenate of lead to one hundred gallons of spray. The sprayer is kept at a pressure of two hundred pounds. Water is conveyed from a brook with a tank filler run by an engine.

"I spray first in the spring when the leaves are about the size of a ten-cent piece. The second spraying takes place when the blossoms first show pink; the third when the petals have about all fallen; the fourth ten days later, and the fifth about a fortnight later. My trees are most thoroughly sprayed until every leaf and stem and branch and trunk is covered. Drenching with the mixture I use does not harm the trees in the least. I begin to spray the trees as soon as they are set out, as it is a mistake to wait until they begin to bear. The fact that they have no blossoms makes it possible to spray them a little in advance of, or shortly after, the bearing orchard. They should receive the same number of applications as the older trees. Lime-sulphur is very effective in ridding the apple trees of oyster-shell bark lice. The trees should be scraped to remove the rough bark before applying the spray, to give it a better chance to work on the scales.

Bees Are Kept.

"A few colonies of bees are kept for the benefit of the orchard. They are proving a source of income from the honey, besides the good work they do in the orchard. I often suspect that fruit growers do not always fully realize the important part that bees play in distributing the pollen. At all events the increase of bees has not by any means kept pace with the increase in orchards. Growers whose orchards are not situated near an apiary would be well advised to keep a few colonies.

"I buy my stock from local nurseries, thus getting trees fully acclimated. The stock costs about twenty-five dollars

per hundred. The trees are set out as early in the spring as the land is fit to work. The standard trees are planted forty feet apart. In between I plant Wageners as fillers. The Wageners are upright growers, bear very young, and do not interfere with the development of the standard trees for a number of years. Moreover, the fruit is of good quality and appearance. I can recommend the Wagener as a filler.

"In planting, I dig a fairly large hole so as to fit all the roots in without any crowding. I put some of the surface soil in the bottom of the cavity and place more over the roots of the trees. The subsoil is placed on top and the ground thoroughly firmed.

The Right and Wrong way to Care for an Orchard

W. E. Biggar, Provincial Inspector of Insect Pests, Hamilton

IN planting a young orchard care should be taken on arriving from the nursery with the trees not to allow the roots to be exposed to the hot sun and drying winds. See that they are well heeled in with moist earth, as soon as possible, preferably in the field where you intend planting them. After the planting is done, the next thought and wish of the planter is to secure a thrifty,vigorous growth in the young trees. This can be done by cultivating frequently—say, once or twice a week up till the last of July or beginning of August—then cease cultivation. It is wrong to continue cultivation throughout the summer, because late cultivation keeps the trees growing, and does not allow the wood to ripen and harden, and then we get winter injury, which often kills from twenty-five to forty per cent. of the trees. I have witnessed a number of cases in different parts of Ontario of winter injury directly traceable to late cultivation.

In pruning a young orchard which has not yet reached the bearing age, do not prune too severely. Excessive pruning checks the growth of the young tree. A certain amount of pruning is absolutely necessary in order to form a well balanced head on the tree; but cutting away the top until there are but a few short stubs of branches left, as I have seen in some instances, constitutes excessive pruning. However, when a tree reaches the bearing age then we must prune.

While the pruning is being done, remove all the dried fruit found clinging to the branches. Practically all this dried fruit was diseased with brown rot, and contains the spores of the disease, which will start the Brown Rot in the fruit of the coming season. Also cut out all branches affected with Black Knot, cutting from four to six inches below where the knot is visible. This will insure removal of all spores which sometimes extend some distance in the bark, below the knots.

As soon as the pruning is finished, gather the brush and burn it. It is wrong to allow brush heaps to remain from one season to another before burning, because it is a breeding place for Shothole or Pinhole Borers. This insect does considerable damage to peach and cherry trees, especially the young trees, and the borers are one of the main factors in spreading pear blight.

Importance of Spraying.

Years ago people would buy scabby or wormy apples and ask no questions, until they made the discovery that such fruit was nearly half wasted when the diseased and wormy parts had been removed. Now the demand is for clean, perfect fruit. This it is impossible to obtain without spraying. In spraying for San Jose Scale, prune and scrape the trees thoroughly and use concentrated or commercial lime and sulphur, testing by the hydrometer 1.300 specific gravity. Add one gallon to six of water and you have it strong enough to kill scale.

Where many fail to control the scale it is because when spraying they fail to get the under sides of the branches and the tips of the limbs covered with spray mxture. All parts of the tree must be covered with spray if we expected to control San Jose Scale. It is a mistake and decidedly wrong to expect to keep scale under control in an apple orchard without thorough spraying.

Spraying should never be done soon after a rain and while the branches are still wet, for it is an absolute waste of time and money, as the spray material will have but little effect in killing scale if applied while the trees are wet. If it is a peach orchard you are spraying, be sure and spray before the terminal buds begin to swell, and then you will positively control curl leaf. A peach tree attacked by curl leaf is certainly a sick tree for the one year, and will in all probability cause a loss of that season's crop of fruit.

Remove trees affected with Yellows. It seems hard to convince some fruit growers that it is a dangerous practice to leave Yellows or Little Peach diseased trees standing in the orchard after being marked by the inspector. By promptly removing the diseased trees, the spread of the disease will be kept well under control, but those who are careless and allow the trees to remain standing for weeks after being marked, pay dearly for their neglect.

I want to mention one instance. In 1914 an orchard was found with thirty-eight diseased trees in it. Being short of help the owner allowed the trees to stand for some weeks after they were marked. This past season of 1915 I was requested to go with the local inspector and together we marked three hundred and eighty-seven trees diseased with Yellows and Little Peach in this orchard. When we told the owner the number of trees we had marked he immediately sent a man with the axe and cut them down. It seems to need an experience of this kind to awaken some men to the fact that Yellows and Little Peach are a very dangerous disease to trifle with.

We now have a staff of well trained and efficient local inspectors, and for the past three years the number of trees diseased, with Yellows and Little Peach has been reduced each year, until the loss is but trifling. Sometimes new men are elected in the Township Councils, and a trained experienced inspector is discharged and an inexperienced man is appointed in his place. This practice hinders and obstructs our work and often results disastrously.

There are numerous large plantations of small fruit in Lambton County. The raspberry plantation here shown is that of Robt. W. Riggs, of Arkona, Ont.

The garden of one who loves birds as well as flowers. Note the simply constructed type of birdhouse used.

A Chat About Roses*

Percival H. Mitchell, Toronto, Ont.

THE qualities which are essential to a good garden rose may be readily stated; their order of merit, however, being of personal preference. For myself I would choose form as the first requirement; second would be color; third, continuity of bloom; fourth, hardiness and vigor; fifth, fragrance, and sixth, freedom from inherent diseases.

The form of a rose varies greatly from the massive flattish blooms generally found in hybrid perpetuals, through the globular shapes to the more or less pointed blooms. They all have their charms, although personally I do not take kindly to the globular shape such as the rose Caroline Testout possesses. In fact in the list to follow the shape is my main reason for disqualifying Caroline Testout from among the first choice in the color, pink.

Rose colors are marvelous and very often are quite as gorgeous as painted by the raisers. Let me quote the color description of Irish Fireflame, a recent development in the single roses:—"In the spiral bud state it is deep maddery orange, splashed with crimson, which as the bud develops becomes fiery orange-crimson, changing to solid delicate orange which becomes, as the flower fully opens, rich, satiny, ochrey-old-gold delicately sheened and veinated, crimson and pure lemonzone. Its gorgeous superimposing intense color gradations spontaneously convey the idea of a flame. The handsome, graceful wood is shiny purple chocolate, and is festooned with varnished, deep, bronzy, green, ovate foliage."

This is rather conjuring with the spectrum, but the delicacy of the shadings of many of the newer roses is really beyond description.

The majority of the newer roses are capable of producing four or five sets of blooms within a period lasting from June until November. While a number of the hybrid perpetuals have really a good second blooming period, the majority make a wonderful display in June and are extremely shy during the balance of the season. So far there are but few climbing roses which flower more than once during the summer. Several of the roses with most pleasing form and color are deficient in vigor and the bush hardly aspires beyond the straggling stage; two indispensible roses, Madame Ravary and Arthur Goodwin, are of this nature; the balance of the roses, however, which I list have good growth in the plant.

Fragrance.

One cannot think of roses without associating fragrance. It is unfortunate that quite a number of our best roses are deficient, and the best white rose, Frau Karl Druschki, is absolutely lacking in perfume; the many other representatives of the hybrid perpetuals, however, quite make up for this, but it is one of the greatest aims of the hybridizers to produce a fragrant Frau Karl Druschki. The hybrid teas are in general fragrant, but after several years, when fragrance was not one of the aims in the hybridizing, the demand has come that the modern rose shall be fragrant, and it is notable that several of the best perfumed roses have been among the most recent productions. The teas as a class have a delicate odor, and while they are described as tea-scented, the fragranee is of widely varied character. One of the sweetest scented roses is Conrad Meyer, one of the hybrid Rugosa roses.

The greatest ills we have to contend with here in roses are mildew and black spot. Many roses are specially subject to mildew, and the naturally vigorous rose is not immune, for Frau Karl Druschki and Conrad Meyer, two of the strongest roses, are quite addicted. Black spot seems to have been imported and is particularly noticeable on the Pernatiana roses. Thus some of our strongest and finest roses are peculiarly susceptable to such diseases, and we must accept such roses and combat their ills as they occur.

The development of new roses is now followed along scientific lines. In England and Ireland, especially in Ireland, the production of novelties reaches large numbers yearly. The catalogues of such noted Irish raisers as Alex. Dickson & Sons, Hugh Dickson, and McGredy & Sons, all in the neighborhood of Belfast, continually show wonderful new roses. The raisers in England, such as Paul, Cant, Merryweather & Sons, and the noted amateur, Rev. J. H. Pemberton, also produce many, but the most striking are of Irish origin from the companies named. In France there are many noted raisers, the most important productions from France today being from Pernet-Ducher, of Lyons.

In purchasing roses it is essential to secure the bushes from the most reliable growers. The roses which are the most satisfactory have generally been budded on seedling briar stocks, and thus a vigor of growth is attained which could only be produced by many years of growth of the rose on its own roots. Moreover, the hybrid teas and several of the hybrid perpetuals will bloom the same season as when transplanted when on the briar, so that the rose garden may be realized soon after planting. In some cases the own-root roses are to be preferred, and again some are better on the manetti stock than on the briar, and the choice may lie further with the soil. Most of the reliable growers, however, have determined the proper stock which is most suitable for garden growth and furnish them in accordance.

*Extracts from a paper read at the recent annual convention in Toronto of the Ontario Horticultural Association.

Bird houses may be made and put in convenient trees. The birds seem to prefer boxes that have weathered a little.

Lobelia, snapdragon, forget-me-not, salvia and verbena may be sown in the greenhouse late this month for early plants.

The old-fashioned bleeding heart makes a good plant at a corner of the shrubbery and as it is a perennial will return each year.

The Care of House Plants

Henry Gibson

AT this season of the year, when the garden is garbed in a mantle of white, our thoughts naturally turn to the window garden, where every green leaf is doubly appreciated. With what tender affection we enjoy such plants as have been reserved for beautifying the home during these dark and often dreary days.

When we consider the extent to which flowers are grown in the home, and the pleasure that is derived from them, not to mention the tender and affectionate regard many people have for them, it is surprising that the study of their habits and needs is not more thorough and general.

The most essential need of house plants is light; direct sunlight if possible; but daylight and plenty of it. The importance of plenty of light cannot be overestimated. If this one condition can be complied with, all others can be so easily provided as to assure success with but little effort. This is worth remembering in every phase of gardening experience. It will cause you to pull aside the curtains, and roll up the shades in the early morning so that the plants will get the first gleams of daylight.

Many householders, having become disappointed at their inability to grow plants and flowers in the living rooms, have improvised plant rooms made out of existing sun parlours, enclosed piazzas, or they have built a small addition to the house for this particular purpose. These, when properly designed, prove most successful, not only as conservatories but as delightful sitting-rooms. Indeed the combination of sitting-room and conservatory is the principle of an arrangement that is likely to prove a feature of the building operations of the future among the more enthusiastic amateur gardeners.

In those homes where only the living-room is available it is possible to keep a variety of plants in a comparatively healthy condition in rooms on the south-east or south-west corners that have good-sized windows on both sides, provided that one is prepared to consider their needs as of prime importance and is willing to give them the constant attention that every living thing requires.

During the day allow the window to perform its one essential function, which is to admit daylight to the room. With the room thus flooded with light many foliage plants will thrive even at considerable distance from the window; in fact some plants have a marvellous capacity for adapting themselves to conditions that are far from ideal. On the other hand flowering plants are most exacting and will tolerate no position short of the immediate window-sill.

Proper watering is important. How much water should this plant have, and how often should it be given? is a question that has been asked over and over again, and as many times answered with but little satisfaction to the enquirer. The watering of plants is one phase of home-culture that is the least understood by the average amateur, yet when one comes to give it a little careful thought there is nothing mysterious about it. It is very difficult for any one to lay down hard and fast rules as to when a plant should be watered, because the amount of foliage that a plant may have, the atmosphere in which it is growing, and the effectiveness of the drainage to carry away all superfluous water are factors that have to be taken into consideration

A plant with a relatively large amount of foliage and blossoms in a small pot will need water more frequently than a plant with less foliage in a comparatively larger pot. The plant with considerable foliage will lose more moisture through the leaves than one with less foliage. In addition to this the former has less soil about its roots to retain moisture for any length of time, whereas the plant with the larger amount of soil to hold the water, and less leaves to evaporate it, will eventually die if adequate drainage is not provided at the roots to carry off the excess water.

A plant growing in a dry atmosphere will demand more water than one growing in cooler and more moist quarters. Plants do not like a dry, arid atmosphere. The greater demand made by the leaves upon the roots for water is very trying to even the most vigorous, and few survive this condition long. There is no royal road to tell when a plant should be watered. The successful professional grower relies entirely on his daily observation of conditions as to the frequency of watering.

Plants in the living room have to put up with what heating and ventilating they can get, but even these conditions can, to a large extent, be made more favorable by the exercise of a little care. As already mentioned, excessive heat, and a dry atmosphere are not desirable. This condition is frequently aggravated by the other extreme of throwing open the doors and windows to air the room, and by poorly fitting sash that allow direct drafts to strike the plants. Rooms heated up to seventy-five and eighty degrees, by steam, hot-air, or hot water, are not really healthy for human beings to say nothing of plants. A certain amount of humidity in the atmosphere is necessary for our health, and so it is with plants. The kitchen is bad enough, with the cooking range and the intense heat that radiates therefrom, yet here we do get some moisture in the air from the boiling water, and steam that escapes from the kettles and pans.

To offset the dryness in the atmosphere of the living-room at least one receptacle containing water should be set in each room. A good place to set

An attractive border on the sloping edge of the lawn of Geo. Vickers, Barrie, Ont.

The modest greenhouse of Mr. H. Goodchild, St. Lambert, Que., made out of odds and ends, at an expense of about fifteen dollars.

them is on the radiator. An even better method of providing moisture in the room is to have a flat tray of galvanised iron, two inches deep, for the plants to stand on. Fill it with a layer of white pebbles, one and one-half inches deep. The tray can be made the length and width of the window shelf. This arrangement is a wonderful aid in watering, since the superfluous water runs away among the pebbles, and quickly evaporates, thus saving the necessity of having to devise some means of getting rid of it and at the same time supplying much needed moisture. Moreover, the whole affair is neat and practical.

The same idea can be carried out to a certain extent by filling the saucers that the plant-pots stand in with pebbles, but the saucers are much more trouble to look after. The evil of letting plants stand in saucers half full of water is an old one, that should be avoided. Try and remember that your plants are living things that have certain functions to perform in order to live. It is impossible for air to pass into the soil of a plant if the pot is standing in water, yet in order to properly carry on their work the tiny roots must have air to breathe.

Every window devoted to plants during the winter, should be double glazed, if at all possible. Great care should be exercised in airing the room on very cold days, as it only takes a few minutes to freeze a plant when the temperature outside is much below the freezing point. When circumstances compel you to subject your plants to a high temperature during the day they should have a correspondingly low temperature at night. A temperature of seventy-five to eighty degrees during the day should fall to fifty-five to sixty degrees at night.

The cultivation of plants does not depend so much on a study of formulas ,or on higher education or deep studies in botany, nor is it altogether one of soils and fertilizers. It is simply a question of whether or not you are sufficiently enthusiastic to study the needs of your plants, and willing to supply them.

The Gloxinia

H. J. Moore, Queen Victoria Park, Niagara Falls, Ont.

THE gloxinia is one of our best tender perennial flowering plants. It is easy to grow, and as it flowers in six or seven months from seed it usually affords a quick return to the grower. The tubers may be carried over for another year if desired, although it is hardly necessary to do so except in the case of desirable varieties. Seedlings will furnish well flowered and saleable plants.

Sow the main batch of seeds in February or March. The plants from these will flower in September and onward. Seed sown in July or August will produce an early spring display which will be most desirable at that time.

Gloxinias require a light porous soil. Fibrous loam, leaf soil and sand in equal proportions will suffice if good drainage is afforded to the pot. When sowing the seed see that the pots are clean. Fill them to within one-half inch of the top, sprinkle or screen a layer of fine soil over the surface upon which sow the seed thinly. It is not necessary to cover the seed, but if such is done the lightest covering of soil possible will be sufficient. Immerse the pots in water until the soil is saturated. Do not sprinkle the fine seeds overhead. Place them in a warm position with a humid atmosphere, and shade from sunlight.

When the seedlings are ready to prick off do this singly in small pots, lifting them carefully and planting them so that their leaves rest directly upon the soil. Do not cover the heart under any circumstances. Shade from intense sunlight through summer, and air on all favorable occasions. Do not crowd the plants, but allow their larger and handsome leaves room to develop. Crippled foliage will spoil the appearance of the plants, the leaves being equally as valuable as the flowers.

Repot finally into five-inch pots, and as the flowering stage is reached reduce the humidity of the atmosphere by ceasing to sprinkle the benches and floors. The gloxinia requires aerial moisture when in a growing state, but resents it when the flowers appear. Great damage may be done through the damping of the flowers, their beauty being marred and the sale of the plants thus precluded.

A temperature of 60 to 70 degrees eminently suits the gloxinia. See that it does not fall or rise to any great degree beyond these points. Afford liquid manure twice every month, discontinuing this when the plants show their flowers.

The gloxinia is one of the plants it pays to hybridize, for the seedlings may produce nearly all the known colors and shades. The fall is the time to do this work. The seed of all good varieties should be collected by the grower. One plant of each will produce more than enough for his requirements, and he will have the satisfaction of knowing that his next year's plants will be at least equal in quality to the parents. A well flowered batch of gloxinias for beauty of foliage and of flower is hard to surpass. When dying off the gloxinias for their winter's rest the amount of moisture at the roots should be gradually reduced. A gradual dying off is the only satisfactory method of preparing the tuber for winter storage, as the leaves will fall naturally, leaving the tubers plump and solid. Store them away on shelves, spreading them on a layer of peat or cocoanut fibre, also cover them lightly with this material to prevent undue evaporation of moisture from their tissues. Prevent excessive dryness and dampness, which alike are deleterious to the tubers. It is usually well to discard the old tubers after the second or third year, as at this age deterioration usually occurs.

Notes on New Plants and Flowers

Wm. Hunt, Ontario Agricultural College, Guelph.

THE ever-increasing demand for something new in the floral world is perhaps more intense now than at any period in the history of floriculture. This sometimes leads to the introduction of varieties that are often introduced with a great flourish of trumpets in the way of advertising; varieties which on actual test, under ordinary every-day conditions, disclose some point of weakness either in habit of growth, color, or perhaps in the constitution or endurance of the plants, that make them worthless to the general plant grower. Taking these facts into consideration, I shall first endeavor to give a brief review of some of the newer or less known plants that have been tested in the College flower borders and grounds during the past five years, most of which have been noted in the reports of the Ontario Horticultural Association during the time mentioned. Those that have shown special suitability for the amateur's garden only will be noted, with date of year when reported on.

Annuals.

1910. Calendula Trianon and Calendula Meteor. Height, one foot. These varieties are improvements on the older types of these easily grown, enduring annuals. The rich coloring of the flowers and the extremely late flowering habit of these plants in the border make them very acceptable at this late season of the year, when almost all other flowers are past and gone.

Coreopsis marmorata. One and a half feet. The bronzy-brown flowers of this variety give it a place among these useful border plants. It is a distinct addition and relief to the yellow flowering varieties.

Hyacinth Flowered Candytuft. The large and enduring spikes of flowers of this new type of Candytuft still holds its superiority over the older types of these flowers.

Sunflower Starlight. Three to four feet. This miniature and free flowering type of sunflower is very acceptable as a decorative plant in the border, and will furnish a bountiful supply of its lemon-yellow blooms, that are so effective for cut flower decorations.

Dimorphotheca aurantiaca. Six inches. This pretty orange-colored daisy, originally introduced from South Africa, makes a very pretty, showy border plant, more especially during the hot summer weather, when sunshine is abundant. It is a sun loving plant, closing up its flowers in dull weather, which makes it almost useless as a cut flower. As a border plant, especially on rather light, sandy soil, it is very effective.

1911. Diascia Barbarae. One foot. Cannot be recommended only to those who delight in a pretty, odd-looking flower. It is not robust enough for the average flower grower.

Eschscholtzia Thorburni. One foot. A beautiful form of the California Poppy, but often reverts more or less to the older types, when produced in perfection, the rich, bronzy-crimson coloring of its flowers is indescribably beautiful.

1912. Rainbow Corn. Three to four feet. The highly colored foliage of this decorative maize still gives it a place as a background plant for a border. Care must be taken in the selection of the seed to secure the best results.

1913. Centaurea cyanus flore pleno. Three feet. This double variety of corn flower can be recommended as superior to the well-known single types of these flowers, especially as a cut flower.

Red Sunflower. Four to five feet. This variety of sunflower, first introduced by Messrs. Sutton & Sons, England, is growing in popularity where an easily-grown, effective border plant is required, its rich bronzy-red and gold flowers of medium size making it conspicuous as a border plant, and also acceptable for decorative purposes as a cut flower, where large quantities of flowers are required.

Brilliant Rose petunia. One foot. This variety, a production of Sutton & Sons, is very effective in masses in the border or as an edging plant. There are several different colors of this compact, dwarf growing type of petunia, that are now catalogued by almost all of our seedsmen.

Pentstemon gloxinoides. Two feet. The newer types of these make excellent summer bedding plants. They grow from eighteen inches to two feet in height, and are something of the same habit as the tall growing Snapdragons. The seed requires to be sown early in March indoors, to get the best flowering results.

Hardy Border Perennials.

1910. Anchusa Italica. Four feet. Although a plant of a rather coarse nature of growth, its showy, deep indigo-blue flowers, produced in profusion from midsummer until quite late in the autumn, make this plant a conspicuous object in the border. For large perennial borders or in the foreground of shrubberies, it is very useful. It is self-seeding and reproduces itself from seed readily. It requires to be kept within bounds on this account.

Dianthus latifolius flore pleno. (Everblooming Sweet William.) This double flowering type of the Dianthus makes a very showy border plant. It succeeds best treated as a biennial.

Primula cortesoides sieboldii. Eight inches. (Primula Sieboldii.) Planted in a rather light soil rich in humus,

The flower bed here shown was planted by the St. Thomas Horticultural Society. St. Thomas is surrounded on three sides by ravines, which cross many streets. This creates "blind ends" on these streets. The planting of flower beds has been adopted by the society as a means of beautifying these "blind ends."

Although Haileybury, Ont., is some three hundred miles north of Toronto, it has numerous fine gardens. A portion of one and of a lawn facing the lake are here shown.

in a partially shaded part of the border, this pretty little hardy dwarf primula will give splendid results. It reproduces itself from seed quite readily in the border. Its white and carmine flowers produced in successive whorls or tiers are a source of delight to all flower lovers in early summer.

Primula malacoides. Twelve inches. One of the best new flowering greenhouse and window plants introduced for several years. Both the white and pink types—the latter in various shades of pink—are very dainty, graceful looking, decorative pot plants.

1913. Chrysanthemum Arcticum. Three to four feet. One of our best autumn flowering hardy ox-eye, daisy-like chrysanthemums. A plant of this covered with its white flowers helps to brighten the border very materially in early autumn. It propagates readily from seed or divisions, and is of a hardy enduring nature. Not a new plant, but not as well known as it deserves to be.

Pentstemon laevigatus digitalis. Three feet. Given a good, rich garden soil, this hardy pentstemon makes a good showing with its foxglove-like flowers. The dwarf type often sold as Pentstemon gracilis, that grows about a foot in height and gives a profusion of white and purple flowers in late summer and autumn, is a very free flowering, attractive little border plant.

Scabiosa Caucasia. Eighteen inches. This perennial type of the well-known "Pin Cushion" plants (taking the common name from the similarity the flower heads bear to a pin cushion), gives to flower lovers its lavender-blue flowers late in the season, when few blue flowers are to be seen in the garden.

1913. Dictamnus or Gas Plant. Two feet. A good hardy border plant with attractive deep green foliage that makes it a decorative feature, even when not surmounted with its sweetly perfumed, showy spikes of white or purple flowers. It is also suitable for forming a lawn hedge.

Salvia globosa. A specimen plant of this salvia, makes a great showing in the border in early summer. Its silvery, pubescent foliage, surmounted by its profuse branches of creamy-white flowers, together with its globular habit of growth, make it a very noticeable plant among the more sombre green foliage of most occupants of the border. To get the best results, this plant should be treated as a biennial, as the old plants do not flower so well the second year, and oftentimes get weakened down if not killed altogether. A light protection of garden trimmings such as old flower stems is advisable during winter. Avoid covering it up with heavy, close, protective material.

The Work of Earth Worms.—Early last June I put a good coat of manure on my asparagus patch, first loosening the surface of the soil a little. The manure was left lying without being dug in, as the roots of the plants would otherwise be seriously injured. On cutting down the dead stalks in November, I could find no trace of the manure; there was only a soft, even spongy, layer of fine soil over the whole patch. The earth worms, favored doubtless by the heavy growth of the asparagus and by the damp cool weather, had brought up the soil from below and thoroughly incorporated it with the manure above. I had never before seen so fine an illustration of Darwin's statement about the work of earth worms.—H. C.

Flowers---Rubber Plants

B. C. Tillett, Hamilton, Ont.

The rubber plant, (Fecus elastica) is probably the most popular of all house plants. At least part of the secret of its success lies in the fact that—almost literally—you cannot kill it. But that is no excuse for abusing it, as there is all the difference in the world between a well-cared-for symmetrical plant and one of the semi-denuded, lopsided, spotted-leaved plants one so frequently sees, and that which, as far as ornamentation is concerned, an empty pot would be far more decorative.

The rubber requires, and deserves, a good rich soil, and in the spring, summer and autumn, all the water the soil will keep absorbed. Give less in winter, as an excess at this time causes the leaves to turn yellow and droop.

As the rubber is more difficult to propagate than most house plants, and since specimens will not get too large for several years, it is best to get the plants from the florist. It frequently happens, however, that an old plant which has been grown up to a single stem becomes unwieldy and bare at the bottom. In such cases the upper part may be removed by "topping," and the main trunk cut back to within six to eighteen inches of the pot or tub. Water should then be partly withheld until new growth starts.

The old stem may thus be transformed into a low bush plant. Frequently it makes a very handsome specimen. The topping should be performed by making a deep upward slanting cut with a sharp knife, at the point you want in the pot for your new plant. In the cut, stuff a little sphagnum moss; remove this after a few days, and wash the cut out with warm water, removing the congealed sap. Insert fresh moss, and with strips of soft cloth tie a good handful over the wound. Keep this moist constantly until the roots show through the moss, which may be several weeks. Then pot in moist earth, not wet, and syringe daily, but do not water the pots for two or three days. Sometimes pots cut in halves and the bottoms partly removed are used to hold the moss in position. August is the best month to propagate.

To renovate lawns that have become worn out the whole surface should first be scratched over with a sharp steel rake. After stirring the surface without unduly injuring the grass roots lawn grass should be sown on the surface, one pint for every three hundred square feet. Now rake over so as to cover seed. The seed should then be rolled or beaten down.

Informal Planting of the Home Grounds*

Miss Mary Yates, Port Credit

THE type of gardening known as formal requires suitable areas and special attention to make it a success. In fact, formal flower gardening, as such, should be in places apart, and not in the landscape at all. Given special treatment, they have great value of their own, but it should be recognized that they are an individual study, as indeed are all perfect types. The Italian garden, with its statuary, and costly symmetrical bedding out, may be an interesting adjunct to large pleasure grounds. It certainly is not in its true place as the main planting of the small yard, or the rural home. Delight is to be gained by making Italian gardens: Or Japanese gardens: Or paved gardens: Or by gardening in walls: Or by the arrangement of Dutch gardens, rockery borders, shrubbery, or a mass of roses: Or by individual collections of irises, hardy asters, paeonies: Or by making bog gardens and fern alleys: And, not the least enjoyable, by collecting the native species.

But let these bear the same relationship to the whole that the library or music does to the dwelling place. Let them be planned for, and approached with due reserves.

Planting to Make a Picture.

The free, informal treatment of garden spaces cannot be too strongly recommended for home grounds.

Was it, do you think, to geometric designs in geraniums and coleus that Tennyson's immortal lover invited his sweetheart when he urged her to "Come into the garden, Maud?"

"Come into the garden, Maud!
For the black bat night has flown,
And the woodbine spices are wafted abroad,
And the musk of the rose is blown."

Neither would it be, I fancy, to the rows of the specialist's collection, or to unsympathetic plantings of the dotted type, but rather to a place of quiet charm, filled perhaps with "the music of some bird-haunted English lawn," where the plantings made a picture.

Too many gardens are only semi-living, and are visited moreover by the spirit of unrest that marks the tending. No mistake, indeed, is more general than to believe that, because a man knows something of methods, of propagation, or of botany, he is necessarily able to plan the whole picture that should express the individuality, the ideals and the fancies of the owner. Accumulation of knowledge is not the smallest guarantee of intelligence in art or philosophy, and does not, in fact, assist in its development. Gardens or pleasure grounds may be divided into two classes—those having an aim or ideal and those without one. The latter present too often, as Dean Bailey says, a spectacle for the birds to laugh at, and of which we are quite conscious but uncertain how to remedy the evil.

Those who would put ideals into their work should turn for inspiration to the wild, where the grace, the profusion and the charm are the despair of the garden maker. Concentration is involved to prevent failure. Drudgery, that gray angel of success, is required if we would become artists in the task of creation or of development. Nothing is easy that is worth while.

Every yard should form a picture with each feature contributing its part to one strong effect.

Use whenever possible the original native planting of trees and, allowing the freedom of nature to remain, design to suit these.

The house, its style and position, play an important part in determining the character and general design of gardens and small yards. It is folly to ignore this. The house is incomplete without a garden, and the garden without a house. The blending of the two together is an intellectual and emotional art. Scattering trees and bushes over the area defeats the fundamental purpose of the place which is to accentuate the homeliness of the home. All powers of the imagination should be brought into play to accomplish this.

In most home grounds, the deficiency is not in too little planting of trees and shrubs, but that planting is meaningless and has no part in the general design. The primary considerations in a good domain are the structural elements of the place, and should be designed first. The flanking and bordering masses are then planted. Finally the flowers and accessories. All this means that the greatest artistic value lies in the effect of the mass, and not in the individual plant. Plant fewer varieties and more of a kind.

In the plan maintain the open centre and mass upon the boundaries. Or plant in good groups, never scattering aimlessly. The more closely these groups can be made part of the general design, the better the effect will be.

Some persons like painted stones, others iron bulldogs, in the front yard, and the word "Welcome" worked into the door-mat, and others like barbered trees. It would seem better taste to put such curiosities in the back yard where the owner may admire them without molestation.

The central idea is the residence with a full open green sward in front of it. Trees and bushes are massed into a framework to give effectiveness to the picture of home and comfort. This style of planting makes a landscape even though the area be no longer than a parlor.

This landscape at all seasons should present features of interest. These are gained by line effects, bold groupings of trees and shrubs, good vistas, etc., becoming thereby independent of mere color.

(To be continued.)

*Extract from a paper read at the last annual convention of the Ontario Horticultural Association.

Spirea Van Houttii blooming against the wall of the residence of Geo. Simpson, Ottawa, Ont.

Large beets may be put in moist soil near a sunny window, and give a few crops of greens between now and spring.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

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2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, and of The Canadian Horticulturist and Beekeeper, $1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

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The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December 1914. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 13,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1914	11,570	August, 1914	12,675
February, 1914	11,550	September, 1914	13,729
March, 1914	11,209	October, 1914	13,778
April, 1914	11,970	November, 1914	12,967
May, 1914	12,368	December, 1914	13,233
June, 1914	12,618		
July, 1914	12,626	Total	150,293

Average each issue in 1907 6,627
Average each issue in 1914 12,524

Sworn detailed statements will be mailed upon application.

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EDITORIAL

Dust Sprays

The problems of the fruit grower ever vary. Changing conditions require new methods. The ability of growers to analyse their conditions and decide correctly when the time has come for the adoption of new practices largely marks the difference between the successful and the unsuccessful grower.

The use of liquid sprays is of sufficiently recent origin to ensure most of our fruit growers having vivid recollections of the vigorous objections that were made to their use when a few venturesome spirits first experimented with them. The fact that modern spraying methods have saved the fruit industry is so well known as to need no comment. Spraying is so generally practised it is only natural that efforts have been made for years to devise new sprays which, while equally effective, would be more easily applied than those now in use.

Representatives of the Ontario Fruit Growers' Association, who attended the recent convention of the New York State Fruit Growers' Association, were impressed with the evidence there brought out in favor of the use of dust sprays for apples. For several years experiments have been conducted by the Agricultural Experimental Station of Cornell University with dust sprays. The information furnished during the discussion supported the conclusions set forth in Bulletin 369 of the Cornell University entitled "Dusting and Spraying Experiments with Apples." In brief this bulletin contends, the dust spray does not control scale insects, but it now seems settled that a mixture of an insecticide and a fungicide can be applied in powder form, using air as a carrier, with better commercial results in the control of preventable apple diseases, and of apple insects, than can be obtained by spraying. The dust method makes it possible for the owner of a large acreage to protect his orchard at critical times, a thing that he has not been able to do with the slower liquid process.

The only objection to the general adoption of the dust method of spraying is that there is no known dust preparation which will kill scale insects and such insects as aphis and pear psylla. For this reason those persons who must spray for scale and for aphis will do well to continue with the liquid method.

Benefits claimed for the dust method are that the equipment is lighter, the application can be made more quickly and easily, as for instance when the soil is wet, there is no trouble from clogging nozzles, higher trees can be sprayed, and the cost, if anything, is less. As yet this new method has not been tested in Ontario, but arrangements are being made by the Ontario Department of Agriculture for a test during the coming season. While it would not do for fruit growers to rush into its use, all fruit growers will be interested in the results obtained from the tests of this spray that will be given next summer.

The Growers and the Canners

The Lincoln and Welland Vegetable Growers' Association has decided to insist that in future canning factories shall cease to regulate the growers' sale price on tomatoes, and that no more tomatoes shall be raised by its members and sold for twenty-five cents per bushel to the canning factories. On the other hand, the canning factories apparently do not wish to pay more than twenty-five cents per bushel for tomatoes contracted to them for the season of 1916. The only fair way to settle a difference of opinion of this kind is for representatives of the tomato growers on the one hand, and of the canning factories on the other, to meet together before the opening of the season and agree upon the contract price. That the canners are better able to pay thirty cents per bushel this year than they were to pay twenty-five cents last year is fairly apparent when we consider the advance in the prices of canned tomatoes and other staples during the last few months, and the greatly increased export trade that has come to Canadian factories since the war. Great Britain used to obtain her supply of canned tomatoes from Italy, but since Italy joined in the war she has been holding on to her supply of canned tomatoes, and Britain has had to look elsewhere. Under normal conditions it is not possible for either Canada or the United States to compete against Italy in this respect on account of the low price of labor and raw material in the latter country. There is a short pack of tomatoes in the United States also, and they are selling at higher prices across the line than in this country. Our Canadian canners have been exporting thousands of cases of goods. This proved a considerable factor in advancing the price so rapidly during the last half of 1915. The factories are likely to be entirely bare of tomatoes by the time the new crop comes in, a condition which has not prevailed for several years. The case of canned peas is somewhat similar. Uusually Britain buys the bulk of her canned peas from France and Belgium, but now she has to look to this continent for them. Canadian factories, too, have had a considerable extra demand for canned pears and other fruits. This all means a strengthening of the canned goods market, which is likely to continue above the normal at least until after the war. On the other hand, with high wages and scarcity of labor the growers are not going to be able to make anything at the low price of twenty-five cents, and it looks as though it were a reasonable request for them to ask an advance of five cents a bushel.

The following is a table of the amount of Canadian canned goods shipped during 1913, 1914, and 1915:—

Ports.	Cases 1915.	Cases 1914.	Cases 1913.
Glasgow	8,945	7,611	27,362
London	143,112	27,282	48,556
Liverpool	166,196	28,048	45,126
Havre	8,967	31,696	29,968
Leith	....	2,099	6,000
Manchester	100	850	3,150
South Africa	1,575	835	161
Bristol	4,499	....	....
Antwerp	....	978	709
Hamburg	....	257	536
Belfast	....	3,900	6,432
Dublin	....	....	300
Hull	....	1,700	4,082
Newcastle	....	399	250
New Zealand	....	111	....
Australia	2,370	21	....
Totals	341,589	105,756	172,632

This shows that in 1915 considerably more canned goods were shipped than in 1913 and 1914 together.

The ambitious plan of work outlined at the organization meeting of the new Canadian League for Civic Improvement, as mentioned elsewhere in this issue, will be noted with satisfaction by all who desire to see the

work of civic improvement in Canada promoted ere our towns and cities attain a size which will make such improvement more difficult. There has been a latent desire in the hearts of many Canadians for a movement of this character. It has only lacked leadership to make it a potent force towards improvement. The newly formed league, with the influence behind it of Mr. Thos. Adams, the town planning expert of the Canadian Commission of Conservation, has a broad field for work and will not lack for ready public support throughout the Dominion.

The members of the Nova Scotia Fruit Growers' Association, at their recent annual convention, in Wolfville, placed themselves unanimously on record as favoring the free importation into Canada of fertilizers. We are spending millions in Canada to encourage more production per acre. There is no way in which this could better be promoted than by making it easier for our fruit growers and farmers to obtain the fertilizers they need. By all means remove the tariff on fertilizers. To call for increased production and then to retard it by making it difficult for those who would increase their production to do so by increasing the cost of fertilizers is hardly consistent. We trust the Government will see this and act accordingly.

There is a movement on foot in Manitoba having for its object the enactment of legislation which will promote the formation of horticultural societies along the lines which have proven so successful in Ontario. Any person who has visited Manitoba and talked with the people of that province cannot help being impressed by the keen desire that exists for the devolopment of horticulture in the urban and rural districts. A movement of this kind should meet with hearty response from the legislature and the societies interested will receive ready public support if they press this matter vigorously.

PUBLISHER'S DESK

Our front cover illustration shows a dust sprayer in operation in a New York state orchard. The experiments conducted by Cornell University indicate that this form of spraying is likely, in the course of the next few years, to be used extensively.

The March issue of The Canadian Horticulturist will be crowded with interesting articles. Many papers read at the conventions of the provincial fruit growers' associations held during January have reached us. It has been utterly impossible for us to publish them all in this issue. Further conventions will be held during the early part of February. The pick of the papers from these various conventions will be published in our March issue and will form a feature of special interest.

Among the special articles we expect to publish in our March issue will be one written specially for The Canadian Horticulturist by Mr. Jas. Marshall, of Hamilton, giving the results of sixteen years' experience in peach growing. It will be illustrated. There will be an article by Prof. W. H. Brittain, Provincial Entomologist for Nova Scotia, entitled "Sucking Insects of the Apple." One of the best addresses delivered at the Convention of the Nova Scotia Fruit Growers' Association, in January, dealt with "Pruning Methods," and was delivered by M. B. Davis, B.S.A., of the Central Experimental Farm, Ottawa. It will appear in our March issue. The results of experiments in the precooling of fruit conducted in 1915 and their relation to the extension of the tender fruit market will be discussed by Edwin Smith, of the Cold Storage Division, Grimsby, Ont. The "Packing of Apples in Boxes and Barrels" will be handled by C. W. Baxter, Chief Fruit Inspector, Ottawa, while Dr. A. J. Grant, recently elected President of the Ontario Fruit Growers' Association, will deal with the subject, "Better Net Returns for Local Associations."

In the floral pages of our March issue, Mr. Wm. Hunt, of the Ontario Agricultural College, will continue his article in this issue by describing in detail some of the best flowers for the amateur gardener. Illustrations of several of the varieties will appear. There will be an illustrated article by John Dunbar, of Rochester, N.Y., describing the "History, Development and Propagation of the Lilac." This is the season of the year when plans are being laid for next summer's gardens. The "Planning of the Home Lot" will be dealt with by Mr. F. E. Buck, B.S.A., of the Central Experimental Farm, Ottawa. Lack of space prevents our mentioning other interesting features of our March issue. It will be worth the price of a full year's subscription.

An error appeared in the January issue of The Canadian Horticulturist which, to our regret, did Prof. Caesar, of the O. A. C., an injustice. A few lines from a longer article were inserted as an item at the bottom of a page which quoted him as saying,

"It is best not to use Arsenate of Lead on fruit trees. It cannot be used with lime sulphur at all, but it may be used with Bordeaux Mixture. The Arsenate of Soda will burn everything if put on by itself." The fact is, as all fruit-growers know, Arsenate of Lead can be combined safely either with lime sulphur or Bordeaux mixture, or may be used alone. It is up to the present time the safest arsenical we have for use on plants. The paragraph attributed to Prof. Caesar, therefore, was misleading and incorrect.

Notice the crowded condition of the advertising columns in this number of The Canadian Horticulturist. It is one of the largest and best issues we have ever published. As we expect our March issue will be equally as good, if not better, advertisers are again advised to reserve space early to ensure our being able to give them the best possible position. Early action ensures our best possible service.

SOCIETY NOTES

LISTOWEL.

As a result of a meeting of our citizens held on January 14th, a horticultural society was organized in Listowel. The society plans to undertake the beautifying of the town, the holding of floral exhibitions, the distribution of horticultural literature, and other similar lines of work. The following officers were elected. Honorary President, H. B. Morphy, K. C., M. P.; President, J. M. Campbell; 1st Vice-President, Thos. Male; 2nd Vice-President, W. R. Clayton; Directors, F. W. Hay, A. W. Featherstone, W. R. Logie, A. H. Hawkins, T. L. Hamilton, R A. Climie, N. A. Gowdy, H. Goddard, J. H. Gunther; Secretary-Treasurer, A. St. Geo. Hawkins.

DR. A. J. GRANT, THEDFORD, ONT.
Dr. Grant was recently elected President of the Ontario Fruit Growers' Association.

ORILLIA.

Although Orillia is one of the most progressive towns of its size in Ontario, it has lacked a horticultural society until one was organized last month with Mr. Isaac Day, as secretary-treasurer. The society is planning to conduct considerable aggressive work during the coming year.

HAMILTON.

The Hamilton Horticultural Society held a meeting January 21st, at which an illustrated lecture on "What can be Grown in the Home Garden," was given by Mr. Wm. Allen, of Toronto, head gardener to Sir Edmund Osler. The society has decided to offer first, second and third prizes to the members bringing in the largest number of new members during the year.

ST. THOMAS.

On account of the increased demand for public flower beds, the St. Thomas Society this year intends to purchase a much larger quantity of flowers than ever before. The society is using its influence in favor of the preservation and increase of the natural beauty of the ravines surrounding the city and their acquisition for public parks and driveways. A large order for many varieties of flowers has been given for planting in Pinafore Park, which the society hopes to make one of the show places of Ontario. Mr. John Dunbar Superintendent of Parks, Rochester, N.Y., is to address the members of the society on February 16th. The address will be illustrated by lantern views.

The Michigan Agricultural College, East Lansing, Mich., is distributing Technical Bulletin No. 21, entitled "How Contact Insecticides Kill."

Business Problems Discussed by Ontario Fruit Growers

PROBLEMS relating to the marketing of the fruit crop were much to the fore throughout the sessions of the annual convention of the Ontario Fruit Growers' Association, held in Toronto, January 19th to 21st. Where in other years much attention has been given to matters relating to the growing of the crops this year such subjects were scarcely considered.

The sesions were business-like throughout. Practically every speaker was present in person and on time. The attendance was large, and the interest keen. President Elmer Lick kept things going expeditiously.

What Was Done.

The convention placed itself on record as being in favor of dividing the No. 2 grade of apples in the Fruit Marks Act into two classes, in order that the requirements of this grade may be more clearly defined. It favored the carrying out of a comprehensive plan of advertising domestic fruits, the enactment of legislation to regulate the shipping of immature fruit, and appointed a committee to consult with the basket manufacturers to see if a standard for basket packages cannot be devised. A warning was issued to fruit growers to beware of undated testimonials published by manufacturers in their catalogues of spraying materials, etc. it being shown that some of these testimonials were ten to twenty years old. It appointed a committee to lay information concerning the status of the fruit industry in Ontario before the Dominion Economic Commission.

Officers Elected.

The following officers were elected: Pres., Dr. A. J. Grant, Thedford; Vice.-Pres., F. A. J. Sheppard, St. Catharines; Sec.-Treas., P. W. Hodgetts, Toronto; Executive Committee, the officers, Elmer Lick, Oshawa, and R. H. Dewar, Winona. Directors, C. W. Gurney, Paris; Albert Stevenson, Longwood; R. B. Whyte, Ottawa; C. Casselman, Iroquois; F. S. Wallbridge, Belleville; J. G. Waite, Wicklow; W. F. W. Fisher, Burlington, and Paul Angle, Simcoe. Delegates to the Ontario Horticultural Exhibition: Messrs. Lick, Dewar, Foster and Hodgetts.

Financial Statement.

The financial statement showed total receipts of $2,745, including a government grant of $1,700, members fees, $309 and a balance from 1914 of $708. The chief expenditures were transportation investigations $1,392, periodicals $728, committees $144. The balance on hand at the end of the year was $307.

Mr. W. T. Macoun, Dominion Horticulturist, had on exhibition an interesting collection of seedling apples originated at the Central Experimental Farm, Ottawa. These included several promising varieties which were commended by all who examined and tested them.

President's Address.

President Elmer Lick referred to problems growing out of the war, including the increased cost of transportation and in some cases lessened demand for fruit. One result of the war will be a necessity for increased revenue for war purposes with a certainty of higher taxes. Owing to the war there is bound to be a shortage of labor this year. Fruit growers were urged to economize on labor and expenses and to pack and grade to standard.

The transportation agent of the Association, G. E. McIntosh, of Forest, urged that the powers of the Railway Commission should be extended. The Commission has no power to award damages for delay in transit, cannot issue an order in reference to rough handling, has no jurisdiction over the settlement of claims, cannot issue an order in reference to delays, jolting or rough handling, has no jurisdiction over navigation companies other than those controlled by railway companies, and cannot issue an order for the extension of a privilege. Were its powers extended it could aid the fruit growers in many ways such as to secure cars in reasonable time, promptly market perishable fruit, secure a minimum speed limit, ensure proper handling of shipments and secure proper rules for the unloading and releasing of cars. Portions of Mr. McIntosh's report will be published later.

Attention was called by Mr. McIntosh to the fact that the railways having failed to secure an increase they asked for in the charges for handling fruit, recently announced that they proposed to change the tariff on the first of December for heated cars by increasing the rates as follows: From Ontario to Winnipeg, $14; and to other points in Manitoba, $16. To Saskatchewan, $19; and to Alberta, $22.60. In addition there will be a charge of 50c per heater per day. The convention passed a resolution recommending the Association to file a protest with the Railway Commission against the proposed change in the tariff.

Historical Committee.

In presenting the report of the Historical Committee, Mr. A. W. Peart of Burlington, pointed out that these reports may not be of great immediate interest because of the familiarity of the public with the subjects discussed. Nevertheless these reports, covering as they do the events of greatest importance connected with the fruit industry, may be of great interest 25 or 50 years hence when future historians may strive to trace out the important incidents connected with the fruit industry of to-day. The report presented by Mr. Peart was concise yet comprehensive. It dealt with such important matters as the formation of the Ontario Co-Operative Apple Growers' Association, the establishment of the Vineland Experimental Station, Reciprocity, the early investigations of the late Dr. Wm. Saunders, and the results that have flowed therefrom; a history of the valuable work accomplished by the late Robert Thompson, of St. Catharines, and concluded with a reference to the interest taken by fruit growers in the great European war in which Canada is playing such an important part.

A Government Fruit Dealer.

Great interest was taken in an address by Mr. H. A. Emmerson, of the Markets Division of the New York Department of Agriculture. A few years ago the New York State Department of Agriculture found that the dealers in live poultry in New York city had a combine which regulated the quantity and prices of the poultry sold. Prosecutions were laid against members of this combine, as a result of which thirteen were sent to prison and two died. It was found that somewhat similar conditions governed the sale of fruit. The Department engaged a warehouse and opened up auction rooms to which fruit growers were invited to consign their high grade fruit. The result was that prices to the producer were increased about 25 per cent. and reduced to the consumer about 20 per cent. Efforts were made by the dealers to buy up the crop in the State, but the Department conducted auction sales in the orchards and thus frustrated the plans of the dealers. Mr. Emmerson left the impression that the work of the Department had proved a great success, and invited Ontario growers to ship their high grade fruit to that market.

Package Problem.

An afternoon session was devoted to the consideration of the best packages to use in the handling of fruit. Mr. J. B. Fairbairn, of Beamsville, spoke on berry crates and containers; Mr. J. W. Clark, of Cainsville, on the economy crate for apples; F. M. Clement, of Vineland, on baskets, and C. W. Baxter, of Brighton, on boxes and barrels. The papers by Messrs. Clement and Baxter will be published in full in The Horticulturist. The discussion of basket packages showed that there is a need for the adoption of standard sizes, and a standard of construction. The following committee was appointed to deal with the matter: W. T. Glover, Burlington; B. Piott, Stoney Creek; W. H. Bunting, St. Catharines; R. H. Dewar, Winona; W. F. W. Fisher, Burlington; J. R. Hastings, Winona; F. M. Clement, Vineland; P. J. Carey, Toronto; Mr. Gardener, St. Catharines; Hewson & Farrell; Merritt Bros.; The Northern Veneer Co., Grimsby; Keenen Woodenware Co., Owen Sound; The Orillia, Leamington, Forest, Oakville, and Arkona Basket Companies, and the Gull River Lumber Co.

The Economy Crate.

The discussion of the "Economy Crate" led by J. W. Clark, of Cainsville, proved a lively one. This crate has been used extensively in British Columbia. It is understood that nearly 50 per cent. of the British Columbia apple crop this year was marketed in this style of crate. It was never used in Ontario before last fall.

Last fall owing to the wet weather, during the growing season, a large percentage of the apple crop had either to be sold as No. 3 grade or in some other way. This led the Ontario Co-operative Apple Growers' Association to use this crate for the lower grade fruit. Mr. Clark urged in its favor that it was cheap, its use saved space in shipping, and it admitted air to the apples and thus prevented the development of scab. Its inside measurement was 12 1-4 x 10 x 18 inches. This gave it a capacity of 2,213 cubic inches, or 13 inches more than the standard box. It was a more convenient shape than the standard box, which is 20 inches long. It is also cheaper than the standard box, which costs about 12c flat, while the crate costs 11c to 12c made up. Because the consumer could see what he was buying he was more ready to purchase than where No. 3 apples are sold in closed packages. Mr. Clark considered that this type of package had come to stay, as it helped to market a grade of fruit that it has been difficult to market heretofore. His Association had marketed different grades of apples in these crates, and had marked their crates 1, 2 and 3X respectively.

In the discussion which followed, objections to the use of this style of package were freely expressed, on the ground that it might encourage an increased production of low grade fruit, and that there was nothing to prevent the use of crates of all kinds and sizes. This would ultimately lead to great confusion and its use would interfere with the sale of high grade apples in standard boxes. Mr. W. H. Dempsey, of Trenton, pointed out about 90 per cent. of apples tend to harden and deteriorate when exposed to the air, as they are when they are in

(Continued on page 40.)

The Grading of Basket Fruits*

F. M. Clement, Horticultural Experiment Station, Vineland, Ont.

THE leading basket fruits are peaches, pears, plums, grapes and cherries. Cherries are seldom graded, the only practice being to throw out all decayed, cracked, damaged, under-ripe, and not attractive fruits while picking or to look them over and discard at the packing table those unfit for shipment and sale.

Grapes are seldom graded. The poorer packages are discarded, but it is not considered good practice to ship No. 2 grapes.

Plums, too, are ungraded. The best trees of a variety may be sold as fancy while the rest are sold as No. 1, but it is seldom that the fruit from any one tree is graded into two or three sizes.

Pears must be graded into at least two grades for size, color, uniformity and freedom from blemishes.

Some apples are shipped in baskets, but this cannot be considered a specialized trade. Only the earlier varieties are sold extensively in baskets.

Is it advisable to fix by law certain standards for basket peaches somewhat after the plan enforced for apples under the "Fruit Marks Act"? It has been maintained that the standardization of grades and packs is the work of individuals and associations. Possibly it is, but if so, it is the work of individuals and associations for apples also. It seems to me that the best aid it is possible to give the grower to-day is to fix by law certain standards that basket fruits must come up to. Many objections can, of course, be raised to such a policy because of the multiplicity of varieties and the variation in the size and color of varieties depending on the season, but apples vary in size and color also and with them the "Fruit Marks Act" works comparatively smoothly. The number of grades advisable would possibly be three or four. I give this only as an illustration—Fancy, Choice, No. 1, and No. 2. For each grade, I believe it will be possible with a little practice to fix the maximum number of peaches that could be put into that grade. Below a certain fixed number the fruit might be considered Fancy. Between this and another number a little higher, the fruit would be Choice, and between this number a little higher, the fruit would be No. 1, and last above this number, the fruit would be No. 2. This would necessitate also the establishing of a minimum weight per basket and would apply only to the layered peaches in closed packages. This may be far in advance of what is possible at present, and I realize such a law could not be put into force without a great deal of discussion and possibly opposition, but still I believe it is an ideal worth aiming at.

Suppose to-day, for instance, a big dealer places an order with one of the buyers and another order with one of the leading Associations, or he places orders with Associations for Fancy and No. 1 fruit. Has the dealer any guarantee that he will receive a uniform grade of No. 1 from both Associations or a uniform grade of Fancy? He has only the reputation of the association as a guarantee that the fruit will be of good quality, but he has no guarantee that the fruit will be up to a certain standard.

*A paper read at the recent convention in Toronto of the Ontario Fruit Growers' Association.

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The Aylmer Sprayer has won medals at home and abroad, in competition against the world. It throws an unusually powerful, fine, misty spray which penetrates into crevices of bark, buds and foliage where insects and their eggs are hidden, and destroys scale, prevents blight and scab, and rids crops of fungus and insect pests. The Aylmer Sprayer is used by seven Governments, is unsurpassed for ease, reliability and efficiency.

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NOTICE TO CANADIAN BEEKEEPERS

We are making a specialty of the pound package trade. Our improvement on the package making it larger and lighter and giving it more ventilation enables us to guarantee its safe arrival. We will ship from our yards in Alabama during April, May and June, packages and queens at the following prices:

Pound package without queen, $1.25—with queen, $2.00—one for $1.00—six for $4.50—12 for $8.50. Select tested, $2.00; breeders, $3.00.

Our stock of 3 band Italians have stood the test for 20 years; there is none better. We guarantee them to be free from disease. Pure mating and no inbreeding. Your money refunded if not satisfied. We sold the A. I. Root Co. two car-loads, and will sell them this season. Our aim is to carry a surplus of stock so as to fill all orders by return mail, 5 per cent. discount on all orders before March 15th.

Reference—American Exchange Bank of Apalachicola, Fla., and the A. I. Root Co.

After March 15th, our address will be Fitzpatrick, Ala.

MARCHANT BROS., Sumatra, Fla.

Is it possible to fix standards and grades for peaches? The grades mentioned would, of course, have to be regulated for uniformity, color, maturity and freedom from blemishes, the same as apples are.

Another objection that is raised to such standards is that they would necessitate certain standard packs as well. The greatest quantity of No. 1's are packed in three layers, three peaches wide. The pack is known as a straight pack, that is, the peaches are placed directly on top of each other. It is maintained that when packed in the interspaces, as is necessary with apples in order to get a good pack, the fruit will not stay in place and the pack is loose and out of order by the time the package reaches its destination. This may be true to some extent, but I cannot understand how it is generally true if the packing is carefully and tightly done. By packing in the spaces, a basket will take a larger peach than when a straight pack is used.

The work of grading must be done by hand as all varieties of peaches, except possibly green Elbertas, are too soft for machine grading.

One other method, or plan, might, I believe, be followed that would protect those who wish to establish higher grades or standards. A plan has been worked out by one of the States to the South of us whereby fruits packed according to certain standards and grades are stamped with a Government stamp. These stamps are sold to growers and shippers who wish to use them. The standard is high and the stamp is a guarantee of quality. Shipments are closely inspected and a very heavy penalty is fixed for any who may use the stamp illegally. This particular brand of fruit is extensively advertised and the trade is beginning to know it.

One other point also that might be mentioned here is the advisability of conducting packing schools throughout the tender fruit districts. This seems necessary whether a law regulating uniform grading and packing is put in force or not.

The N.Y. Fruit Growers' Convention

Prof. J. W. Crow, Guelph, Ont.

In reply to a request of the editor for information in regard to the proceedings at the recent convention of the New York State Fruit Growers' Association, I might

QUEENS OF QUALITY

The Editor of the BEEKEEPERS' REVIEW and his sons have 1,100 colonies of bees worked for extracted honey. With all those bees working with equal advantage, all having the same care and attention, they have an opportunity unexcelled to ascertain without a reasonable doubt, colonies desirable as breeders from a honey producer's standpoint. Likely, never in the history of beekeeping, was there a better opportunity to test out the honey getting strain of bees than this. Think of it, 1,100 colonies with equal show, and a dozen of those colonies storing 250 to 275 pounds of surplus honey this last poor (with us) season, while the average of the entire 1,100 being not more than 40 pounds per colony. We have sent two of our very best breeding queens (their colonies producing 275 pounds surplus each, during the season of 1915) to John M. Davis, and two to Ben. G. Davis, both of Spring Hill, Tenn., and they will breed queens for the Review during the season of 1916, from those four superior honey gathering breeding queens. Those young queens will be mated with their thoroughbred drones. Our stock is of the three banded strain of Italian, also that of John M. Davis, while Ben. G. Davis breeds that disease resisting strain of goldens, that is becoming so popular.

By this time you are likely thinking that your strain of bees may be improved some by the addition of this superior strain of Review queens and how you can secure one or more of those superior honey gathering queens as a breeder. We will tell you: They will be sold to none except Review subscribers. If you are a paid-in-advance subscriber to the Review for 1916, we will mail you one of the daughters of those famous queens in June for a dollar. If not a subscriber to the Review for 1916, send $1.75 for a year's subscription to the Review and one of those famous young queens. Those queens are well worth two dollars each, compared to the price usually charged for ordinary queens, but we are not trying to make money out of this proposition, only we are anxious to have every subscriber of The Beekeeper (Canadian postage free), a subscriber of the Review, and we are taking this way to accomplish the object. A few of the very first orders for queens that we receive can be mailed in May, but the majority will not be mailed until June. Orders filled in rotation. Have your order booked early and avoid disappointment.

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F. W. JONES
BEDFORD, QUE.

state I did not arrive in Rochester in time to hear the discussion on "Dust Sprays," but I, nevertheless, heard a great deal about it from Mr. D. Johnson, Dominion Fruit Commissioner; Mr. Walter Dempsey, of Trenton; Mr. W. F. Kydd, Toronto, and from many others who were there. The fruit growers seemed inclined to accept the statement of the experimenters with regard to results secured, and these results I may say show satisfactory returns for codling moth and scab when compared with results of careful spraying. Unfortunately, the dust idea seems at present to be limited to codling moth, and scab, and will not appiy in the case of San Jose Scale, peach leaf curl, or pear psylla, at least at present.

The advantage of working with dust is that one man and one horse can do considerably more work in one day than can be done by three men and two horses with an ordinary power sprayer. The dust outfit costs from $125 to $250, and it is claimed that forty acres of bearing apple orchard can be thoroughly dusted in one day.

The Ontario delegates were much interested in the work of the New York State Commissioner of Foods and Markets, which was thoroughly discussed before the convention, and which received from the convention a very hearty vote of confidence. The commissioner is, of course, a government officer, but the strange thing is that he is established in business for the purpose of marketing New York State food products. Any grower in New York State, or for that matter in any other state, may consign a shipment of any size to the commissioner. The goods are handled under contract with one of the large auction sales rooms, and a five per cent. charge is sufficent to place the shipment into the hands of the retailer.

DUST SPRAYS.

Very successful experiments in the use of dust sprays have been carried on in New York State, for several years. Cornell University of Ithica, New York, have been experimenting for five years and this year have issued a bulietin No. 369, showing the results of their experiments and the many advantages of dusting.

During the recent New York State Fruit Growers' Association the most important address at the meeting was one by Professor Reddick on the use of dust sprays. He told the growers that they would have to use dust, particularly those who have large orchards and find it impossible to get over their spraying in three or four days or who have trouble securing labor.

He showed tweive different advantages of dusting over spraying for summer application. The most important of which was the great saving in time and labor. Our man with a dusting machine being able to do more work in one day than three men with a power sprayer would do in four days.

Besides these experiments the Niagara Spray Companies have been carrying on some extensive investigations and during the past year dusted a good many large orchards. They have issued a special bulletin on the result of their work.

The Niagara Companies have always been foremost in all matters of sprays. They have worked out the most approved and up-to-date dusting machine in the world. They have installed complete machinery for grinding and preparing all kinds of dust sprays, so are in a position to take care of any requirements for either machines or materials.

The Niagara Brand Spray Co. of Burlington, will be pleased to give any information on this important subject.

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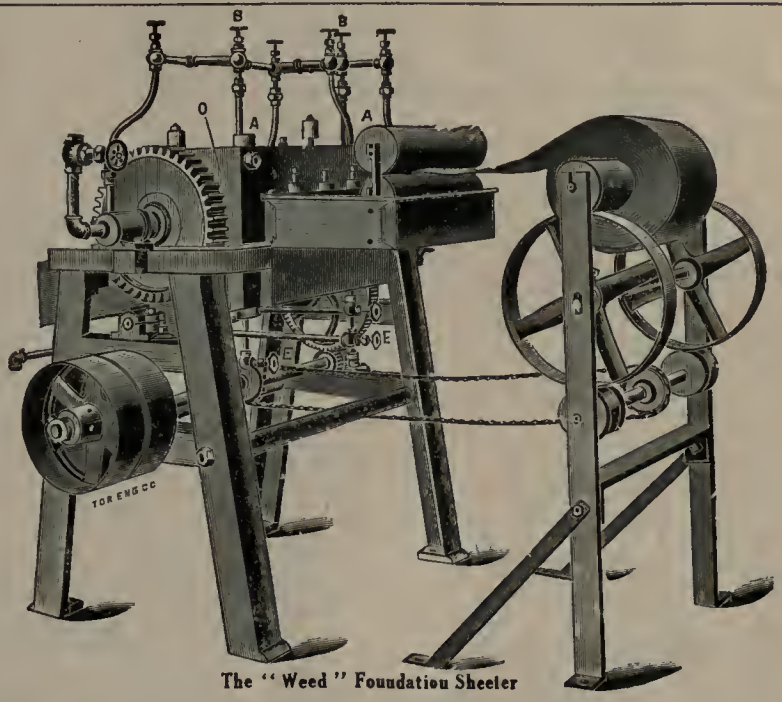

The "Weed" Foundation Sheeter

FOUNDATION made by this process excells all other in strength of texture. This feature, combined with nice, straight uniform sheets, good cell walls and thin base, gives it world-wide reputation for general excellence of quality. So much better than the ordinary, and costs no more—Try it.

Customers' Wax made up by "Weed" Process.
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is the title of a new book of 326 pages by Mr. Frank C. Pellett, State Apiarist of Iowa.

As the name of this book indicates it is especially adapted to the needs of the practical beekeeper. Not a discussion of scientific principles, but of practical methods.

Sources of Nectar, Wintering, Marketing, and Laws that Concern the Beekeeper, are titles of chapters of special interest.

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134 illustrations, attractive cloth binding.

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E. E. MOTT,
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Northern Bred Italian Queens.

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Try Moore's Strain Next Year.

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Fine Italian Queens.

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Best bred Italian Queens and Bees.

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Bees and Queens.

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Bees by the pound, also best Italian Queens.

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Three band Italians bred for business.

THE ROOT CANADIAN HOUSE,
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Canadian and U.S.A. bred queens and bees. Bees by the pound or colony.

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"Quality" Italian Queens.

JOHN A. McKINNON,
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Best northern bred stock.

WM. ATCHLEY,
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Wants to sell you your early bees by the pound. Queens in season.

STOVER APIARIES
Mayhew, Miss.
Not a single complaint.

J. W. K. SHAW & CO.,
Loreauville, La.
Everyone knows their strain of three-band Italians.

Business Problems Discussed by Ontario Fruit Growers

(Continued from page 36.)

an open crate. Strong exception was taken by several of the growers to the fact that the crates had been marked 1, 2 and 3X, as it was felt that the use of these grades might tend to deceive that portion of the public not aware of the fact that these markings have been discontinued under the Fruit Marks Act.

Mr. R. M. Winslow, of British Columbia, showed that the use of this crate in British Columbia has resulted in many different styles and sizes of crates being used and that these vary greatly in their construction. Their use is constituting quite a problem, but apparently it is a package which has come to stay. No action was taken by the convention. It seemed to be the general opinion that ultimately legislation will have to be adopted covering the style and construction of this style of package.

Marketing Tender Fruits.

A morning session was devoted to problems arising out of the marketing of tender fruit. A carefully thought out address on the necessity for amalgamation among the fruit growers in the Niagara district in the marketing of their crop was given by Mr. J. R. Hastings, of Winona who showed that the time for such action has come and why it is required.

The results of the advertising campaign conducted by the fruit growers of the Niagara district last fall were described by Mr. W. H. Bunting, of St. Catharines. Although the crop was large and the season at times unfavorable, and trying financial conditions prevailed throughout the country, the advertising campaign had prevented any serious retardation in the movement of the crops during even the heaviest shipping season. A demand had been created in many districts where fruit had not been sold before and in other districts the outlet enlarged, with the result that distribution had been better than ever before known. The prices realized had not been large, but this condition had been anticipated. The growers were well satisfied with the results of the campaign.

Mr. T. B. Revett, of Niagara-on-the-Lake, criticized the campaign to some extent, on the ground that it had not increased the price for fruit, and that it had not enabled individual growers to make direct sales. He thought the campaign should have been so conducted as to have established a uniform price. By way of reply, Mr. Bunting quoted from a London, Ontario, paper which showed that on one day in that city alone, eight car loads of fruit had been sold, where formerly the consumption was about eight car loads in a week.

The results of pre-cooling experiments at Grimsby were given by Messrs. Edwin Smith and J. M. Creelman, of Grimsby. These papers will be published later.

The Fruit Marks Act.

Great interest centred in a discussion of what constitutes a No. 2 apple, as led off by Dominion Fruit Commissioner, D. Johnson, of Ottawa. Mr. Johnson stated that no trouble has been experienced in regard to the No. 1 grade. The difficulty centred around the No. 2 grade. In brief, Mr. Johnson contended that it was absolutely necessary that a definition shall be prepared for the No. 3 grade, or that two grades be established for the No. 2 grade. A committee was appointed to consider the matter. This committee later recommended in favor of two grades being established as follows:

A "Quality" grade, which must not include any culls, and be sound, of not less than nearly medium size, and of fair color for the variety, and not less than 85 per cent. free from scab, worm holes, bruises and other defects, and properly packed.

A "Domestic" grade which must include no culls, be sound, of not less than nearly medium size and fair color for the variety, ninety per cent. free from worm holes, but may be slightly affected by scab and other minor defects, and properly packed."

This recommendation was approved by the Association. In view of the fact that the matter would probably be considered by other provincial associations the matter was left in the hands of Messrs. W. H. Gibson, Newcastle; W. H. Dempsey, Trenton; C. W. Gurney, Paris; Elmer Lick, Oshawa; P. W. Hodgetts, Toronto; W. F. W. Fisher, Burlington, and the president, Dr. Grant, of Thedford, who will consult with the Dominion Fruit Commissioner in regard to the taking of further action.

A paper on the grading of basket fruits was read by F. M. Clement, of Vineland. This is published elsewhere in this issue. Dr. A. J. Grant, of Thedford, and C. F. Howard, of Hagersville, spoke on the obtaining of better net returns by local associations. Both these papers will be published later. Prof. L. Caesar, of Gueiph, spoke on the Leaf Rollers. A paper by him on this subject appears elsewhere in this issue.

Ontario Apples Inferior.

Throughout the convention frequent reference was made to the fact that apples grown in British Columbia and the Pacific Coast States were being sold regularly in Toronto for higher prices than Ontario packed fruit could command. It was explained that one reason for this was that the western fruit was better colored, it was packed more uniformly and each box contained a certain number of apples, the number of which was marked on the outside. Doubt was expressed by Mr. P. W. Hodgetts as to whether Ontario would ever be able to hold its own with late varieties of apples against this western fruit. The opinion seemed to be that Ontario could do better than she has been doing and that as soon as co-operative methods have been adopted more extensively an improvement would be effected.

British Columbia Conditions.

That all is not well with the fruit growers of British Columbia, was shown by the address given by Mr. R. M. Winslow, Secretary of the British Columbia Fruit Growers' Association. Mr. Winslow showed that in spite of the fact that the fruit growers of the province have steadily improved their methods of production, and of marketing their fruit crops, they are being seriously handicapped by the large quantities of fruit shipped into Canada by the Western Pacific Coast states. Each year some 1,000 car loads of apples are sent into western Canada and sold at the lowest American quotation. The Northwestern States have planted enough apples to supply their markets several times over. For years past their product has not been sold at a price that averaged the cost of production, and a large part of their orchards are being cut down. As the cost of production is lower in the Pacific Coast States than in British Columbia, this competition was proving most trying to the British Columbia grower. It is expected that the 1916 crop will be at least double the 1915 crop. Mr. Winslow estimated that for four years to come the average selling price of Northwestern apples will be below the cost of production. To meet the situation the executive of the Brit-

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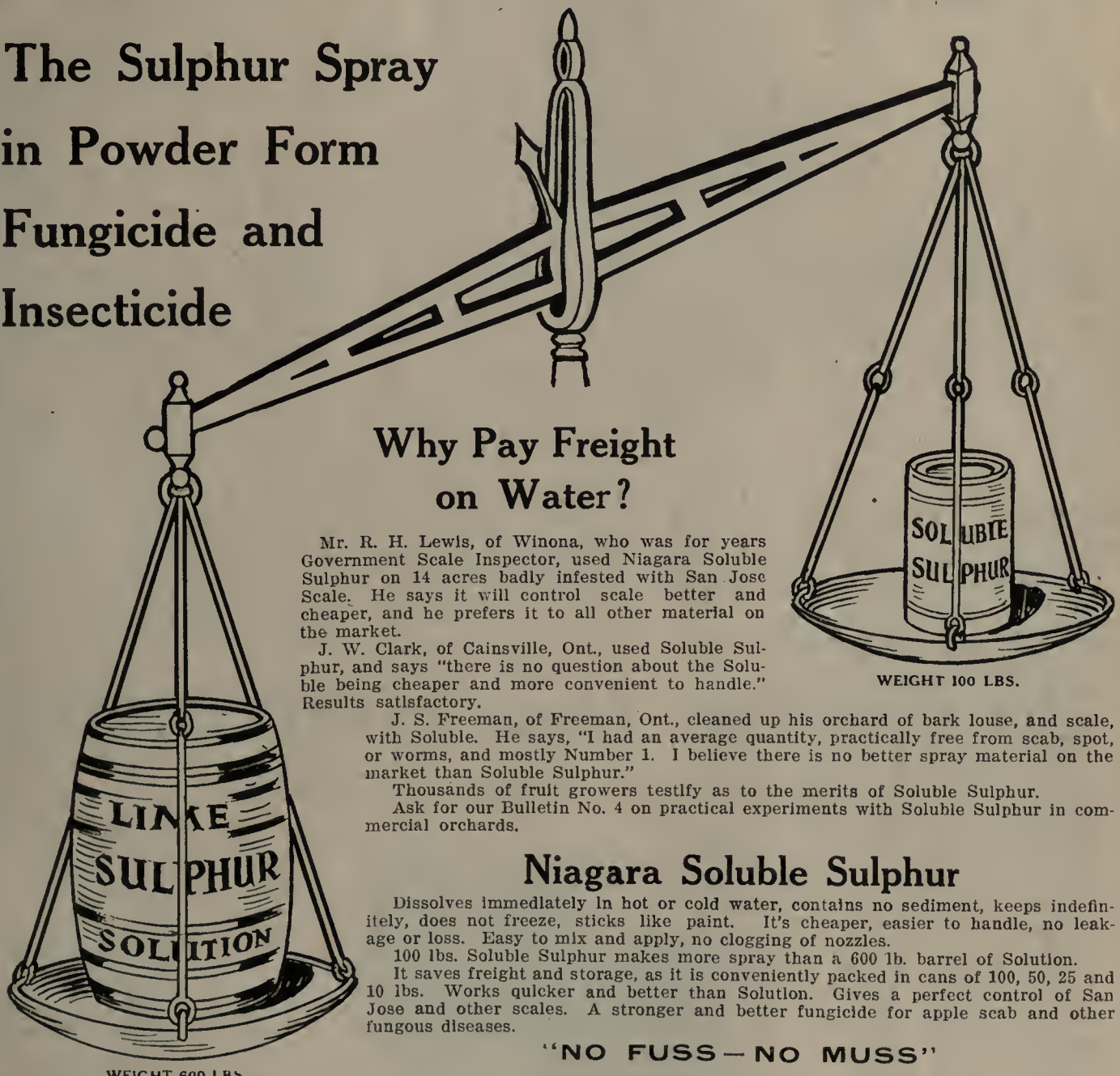
The Sulphur Spray in Powder Form Fungicide and Insecticide



WEIGHT 600 LBS.

WEIGHT 100 LBS.

Why Pay Freight on Water?

Mr. R. H. Lewis, of Winona, who was for years Government Scale Inspector, used Niagara Soluble Sulphur on 14 acres badly infested with San Jose Scale. He says it will control scale better and cheaper, and he prefers it to all other material on the market.

J. W. Clark, of Cainsville, Ont., used Soluble Sulphur, and says "there is no question about the Soluble being cheaper and more convenient to handle." Results satisfactory.

J. S. Freeman, of Freeman, Ont., cleaned up his orchard of bark louse, and scale, with Soluble. He says, "I had an average quantity, practically free from scab, spot, or worms, and mostly Number 1. I believe there is no better spray material on the market than Soluble Sulphur."

Thousands of fruit growers testify as to the merits of Soluble Sulphur.

Ask for our Bulletin No. 4 on practical experiments with Soluble Sulphur in commercial orchards.

Niagara Soluble Sulphur

Dissolves immediately in hot or cold water, contains no sediment, keeps indefinitely, does not freeze, sticks like paint. It's cheaper, easier to handle, no leakage or loss. Easy to mix and apply, no clogging of nozzles.

100 lbs. Soluble Sulphur makes more spray than a 600 lb. barrel of Solution.

It saves freight and storage, as it is conveniently packed in cans of 100, 50, 25 and 10 lbs. Works quicker and better than Solution. Gives a perfect control of San Jose and other scales. A stronger and better fungicide for apple scab and other fungous diseases.

"NO FUSS—NO MUSS"

ARSENATE OF LEAD.

Swift's and Niagara Brand. Guaranteed highest grade—15% arsenic oxide. Mixes easiest and stays mixed.

NIAGARA LIME SULPHUR.

Was highest in Beaume Test. Clear and uniform at all times—the pioneer solution.

DUST SPRAYS.

Finest Powdered Sulphur—Powdered Arsenate of Lead. Dusting Machines.

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55 First Prizes in One Garden

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You can do this if you sow

D. & F.'s HIGH GRADE SEEDS

55 First Prizes taken by Mr. F. S. Watson, of Lachine, Que., last year on products grown from D. & F.'s High Grade Seeds.

Have a prize garden yourself this summer. Catalogue sent free on request.

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Montreal, Que.

ish Columbia Fruit Growers' Association has urged the amendment or interpretation of the Anti-Dumping Clause of the Tariff Act so as to impose an adequate dumping duty on fruits imported at less than the cost of production.

Final Resolutions.

Resolutions passed referred with regret to the death of the late Robt. Thompson, of St. Catharines, and Major A. E. Kimmins, of Winona, thanked Hon. Martin Burrell, Dominion Minister of Agriculture, for the appointment of Mr. D. Johnson as Fruit Commissioner, thanked Hon. Mr. Duff, Provincial Minister of Agriculture, for work done by the fruit branch under Mr. P. W. Hodgetts, at the Vineland Station by Mr. Clement, and for the work of Prof. L. Caesar. Cold Storage Commissioner, J. A. Ruddick, was congratulated on the success of the work his Division has done, in regard to the pre-cooling of fruit. The association decided to amend the constitution so that the fees to local associations will be 50c hereafter, instead of 25c as formerly.

Items of Interest

A free short course in fruit growing and vegetable gardening will be held at Macdonald College, Quebec, February 7th to 11th.

The well known seed firm, "Kelway's," of England, has issued a little booklet entitled "Lest we Forget," giving a list of the employees of the firm who have enlisted in the British Army or Navy since the war started. The list includes almost fifty names. In addition a still larger list is published of former employees who have also enlisted.

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To make your home look worth while—and worth more.

Lovers of Roses

will find many suggestions in its list of 115 hardy varieties. It also lists many varieties, new and old, of Shrubs, Vines, Herbaceous Perennials, Trees and Bedding Plants.

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A Free Trial Package is Mailed to Everyone Who Writes.

A. L. Rice, a prominent manufacturer of Adams, N.Y., has discovered a process of making a new kind of paint without the use of oil He calls it Powdrpaint. It comes in the form of a dry powder and all that is required is cold water to make a paint weather proof, fire proof and as durable as oil paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manuf'r., 37 North St., Adams, N.Y., and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write to-day.

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Engine, Pump and Pump Gear, mounted on Heavy Steel Beams and cannot get out of alignment.

Phosphor Bronze Bearings used throughout.

The best and most up-to-date outfit money can buy.

We also manufacture complete lines of Gas and Gasoline Engines, Windmills, Tanks, Grain Grinders, Steel Saw Frames, Water Boxes, Pumps, etc.

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Manitoba

J. A. Neilson, Manitoba Agricultural College, Winnipeg.

The Manitoba Horticultural and Forestry Association will hold their joint annual convention at the Manitoba Agricultural College on February 17th and 18th, 1916. The convention this year promises to be a very interesting one, as experts of the various branches of horticulture will be present to contribute to the success of the programme. Mr. Robson Black, Secretary of the Canadian Forestry Association, will provide an illustrated lecture on Forestry Problems. Mr. Norman Ross, Chief of Tree Planting Division, Forestry Station at Indian Head; Mr. A. P. Stevenson, of Morden; Dr. H. M. Speechly, of Pilot Mound; Mr. J. J. Ring, of Crystal City, and other leading horticulturists are expected to take part in the programme. Representatives are expected from Neepawa, Souris, Pilot Mound, Stonewall, Killarney, Dauphin, Brandon and other Societies. The discussions on the programme, and the exchange of views and experiences by the delegates from the different sections will doubtless provide a considerable stimulus to the growing interest in the work of Horticulture and Forestry in Manitoba. The various local socleties have already done good work, but much more remains to be done.

The following is a provisional programme:—

Thursday Afternoon, Feb. 17th.

WOMEN'S MEETING.

1 p.m.—Inspection of buildings and greenhouses.

2 p.m.—Invocation.

Paper—"The test of house plants and how to comfort them"—Miss Barbara Stratton, Stonewall, Man.

Paper—Mrs. S. E. Clarke, 325 Vaughan St., Winnipeg.

Address—"The Farmer's Vegetable and Fruit Garden"—President J. B. Reynolds.

Illustrated lecture—"What Bees do with Flowers"—R. M. Muckle, Lecturer in Beekeeping, Manitoba Agricultural College.

Address—"Vegetables as health preservers"—Miss Ethel M. Eadie, Prof. of Household Science, Manitoba Agricultural College.

Illustrated lecture—"Birds in their relation to Horticulture"—Dr. H. M. Speechly, Pilot Mound, Man.

Thursday Evening.

7.30 p.m.—Business Meeting—appointing committees, receiving reports from local societies, draughting resolutions.

Friday Morning.

9.30 a.m.—Demonstrations in preparation of spray mixtures—J. A. Neilson, Assistant

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Many catalogues are dull and drab but Rennie's is an exception. It is full of interesting items that the gardener and amateur love. It contains a most complete list of the Best Roses for every purpose, Bedding, Exhibition as well as Dwarfs and Climbers.

PLANT THE BEST SEEDS, BULBS, ROSES, SHRUBS AND VINES OBTAINABLE.

4 FINE HARDY TEA ROSES 40c each, 4 for $1.25.

MRS. AARON WARD—Color Indian yellow, washed with salmon gold, free blooming, a fine bedder.

J. B. CLARK (Irish)—Deep scarlet shaded blackish crimson, flowers are large and beautiful.

K. AUGUSTA VICTORIA—Creamy white, a distinct and very beautiful variety.

KILLARNEY (Irish)—Pale pink, long pointed buds, lovely and distinct, splendid for bedding.

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OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto Market, we have established branch warehouses with competent men in charge at Sudbury, North Bay, Cobalt, Cochrane and Porcupine. In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

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The old reliable headquarters for Spraying Materials, Pumps and all Fruit Growers Supplies.

Having purchased large quantities of Sulphur, Lime-Sulphur Solution and Arsenate of Lead before the last big jump in prices, we are in a position to supply growers in small lots at present wholesale car load prices. Be sure and get our prices before placing your orders. We sell the famous "Friend" Power Spraying Machine and Outfits. Also the "Gould" Pumps and Accessories.

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St. Catharines, - Ontario

Built for Business—The Ontario Fruit Sprayer Model 2-B.

It is powerful, very simple and low in price. The engine fills the tank, and with our Patented Clutch engine can be used for any other purpose without taking it off the Sprayer, a valuable feature not to be overlooked.

Write for our free catalogue on Spraying and Apple Evaporating.

FRUIT MACHINERY CO., - Ingersoll, Ont.

in Horticulture, Manitoba Agricultural College.

Address—"Vegetable Storage" — James Tribe, West Kildonan, Man.

Paper—Edward Mancer, Lot 12, St. Pauls, Man.

Paper—"Markets and marketing garden produce"—F. W. Hack, Lot 119, St. Vital, Man.

Address—"How to have a successful farm garden during a dry year"—J. J. Ring, Crystal City, Man.

Address—"Spore production in plant diseases"—V. W. Jackson, Prof. of Botany, Manitoba Agricultural College.

Friday Afternoon.

1.30 p.m.—Demonstration of grafting—J. A. Neilson.

Paper "Horticulture at Souris"—S. E. Clarke, Souris, Man.

Paper—"Horticulture in and around Dauphin"—J. E. Boughen, Valley River, Man.

Paper—"Investigational work in Horticulture at the Brandon Experimental Farm"—S. A. Bjornason, Brandon, Man.

Address—"Horticultural experiences for the year 1915"—A. P. Stevenson, Morden, Man.

Paper—"Cultivation of the Iris"—F. L. Skinner, Dropmore, Man.

Address—"Forest Notes for the year 1915"—Norman M. Ross, Chief of Tree Planting Division, Indian Head, Sask.

Address—"Cutworms and their control"—E. H. Strickland, Supt. Entomological Lab., Lethbridge, Alta.

Friday Evening.

Address—Hon. Valentine Winkler, Minister of Agriculture, Winnipeg.

Illustrated lecture—"Forestry" — Robson Black, Sec. Canadian Forestry Association, Ottawa.

Address—"How plants live"—V. W. Jackson, Prof. of Botany, Manitoba Agricultural College.

Saskatchewan's School Gardens

The furthering of agricultural education in the primary schools of Saskatchewan, inaugurated about a year ago, has already given most encouraging results. Since the formation of an agricultural instruction committee last winter and the appointment of Messrs. Cocks and Bates as directors of School Agriculture, much preparatory work has been done by them to encourage the formation of school gardens, by interviewing teachers and trustees, and by giving lectures and addresses to public meetings. A Farm Boys' Camp held at Regina Exhibition was a pronounced success, and the number of excellent Junior Fall Fairs, which have been held at various points, show clearly the good results obtained.

The benefit derived from bringing all the children in the Province on an equal footing in school garden competitions is very evident, and has been pointed out by many public speakers, for not only have the children of non-English-speaking communities had their share of successes in these competitions, but several scholarship winners are to be found amongst them.

The latest evidence of co-operation between the Departments of Education and Agriculture is that the latter has undertaken to provide the seeds of vegetables, flowers, grasses, cereals and trees at a reduced price. A catalogue of the seeds is now in course of preparation, and will be sent out to every school district before the end of the year.

League for Civic Improvement

A Civic Improvement League for Canada was formed in Ottawa, January 19th and 20th when about 150 delegates from different parts of Canada attended a meeting held for that purpose. The conference, which was held in the Railway Committee Room of the House of Commons, was opened by His Royal Highness, The Duke of Connaught.

The objects of the proposed League were explained by Mr. Thos. Adams, the Town Planning Expert of the Commission of Conservation. In a broad way they include the advancement of general civic improvement, the bettering of local forms of government, the drawing of town planning schemes, the re-planning of old districts on modern lines, the improvement of housing conditions in cities; the making and preservation of parks and open spaces in cities; the regulation of public advertising, the public performances of music; the physical recreations of the young and the cultivation of idle suburban land.

A proposal by Mr. Adams that the League should aim at the institution of a department of municipal affairs in each province, met with general approval as did a suggestion that efforts might be made to promote an International League, which could approach such a body as the Russell Sage Foundation, and ask for a bequest which would enable the League to make known how various cities in the world promote civic improvement. Those present included many prominent men among whom were Sir John Willison, of Toronto, Dr. Jas. W. Robertson, of Ottawa, Mayor Walters, of Hamilton, Mayor Waugh, of Winnipeg. A provisional council was elected which will be representative of all the provinces.

I don't get one-tenth as much out of The Canadian Horticulturist as I ought, but I get far more than the value of the subscription. The fault is mine as the information is certainly in the paper. It is for us readers to use it.—A. C. Campbell, Aylmer East, Que.

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Control complete. Prevents drought losses. Reduces labor bills. Increases profit. Special Portable Line for $11.75. Send for new Bulletin.

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NEW AND RARE SEEDS

Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalogue free.

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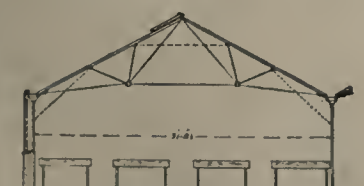
ENFIELD, MIDDLESEX, ENG.



STYLE C

This is a New Model for 1915, the result of fifteen years' experience in Greenhouse construction for Canada.

Dotted lines show location of wind-ties that positively prevents vibration of the sash.

Supplied in widths up to 25 feet 2¼ inches from post to post.

KING CONSTRUCTION CO.,
40 Dovercourt Road - Toronto.

YOU Have Many Uses For This Machine!

We are frank in telling you that a SPRAMOTOR, rightly used, will earn its cost the first season and pay you a hand some profit besides.

Our SPRAMOTOR is a very adaptable machine—one that will benefit you in many ways. It saves orchard trees and row crops with equal certainty, destroys weeds, kills rot, blight, canker, lice, beetles and all parasites.

It throws paint or whitewash on to buildings twenty times as quickly as by hand, and does a better job. Used with disinfectant, it protects horses and cattle from biting, tormenting flies and lice. It reduces the percentage of loss in fruit over 80 per cent., as shown by Government tests in 19 different orchards. Used on potatoes, a SPRAMOTOR has increased a yield of almost nothing to 400 bushels an acre.

Spramotor
It isn't a SPRAMOTOR unless we made it

The SPRAMOTOR stands unequalled in the whole world as an effective spraying machine. It has won over 100 Gold Medals and First Awards against all comers. Twenty distinct patented improvements on the SPRAMOTOR that no other machine can have.

Prices run from $6 up to $400—dozens of styles and sizes. Let us send you FREE our valuable illustrated treatise on Crop Diseases. Post-card brings it quickly.

Made in Canada—No duty to pay.

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THE FENCE THAT STAYS "PUT"

PEERLESS Perfection is one of the easiest fences to erect, because it stays "put." It can be erected over the most hilly and uneven ground, without buckling, snapping or kinking. Every joint is locked together with the well-known "Peerless Lock." The heavy stay wires we use prevent sagging and require only about half as many posts as other fences.

Peerless Farm Fence

is made of the best Open Hearth steel fence wire. All the impurities of the steel are burned out and all the strength and toughness left in. Makes the fence elastic and springy. It will not snap or break under sudden shocks or quick atmospheric changes. Our method of galvanizing prevents rust and the coating will not flake, peel or chip off.

Send for catalog. It also describes our farm gates, poultry fencing and ornamental fencing.

Agents nearly everywhere. Agents wanted in unassigned territory.

The Banwell-Hoxie Wire Fence Co., Ltd.

Winnipeg, Manitoba. Hamilton, Ontario

CENTRAL NURSERIES

For reliable Apple, Pear, Plum, Cherry, Peach and Ornamental Trees, Shrubs, Roses, Grape Vines, Berry Plants, Evergreens, Hedges, etc.—good ones, too.

Also Seed Potatoes.

We ship direct to customers. Our new price catalogue will interest you. Note our offers—they are dependable and O. K.—35 years at it. No agents for us.
Early Six Weeks' Seed Potatoes for sale.

A. G. HULL & SON, St. Catharines, Ontario

"TAYLOR-FORBES." "MADE IN CANADA."

Tree Pruners

Patented because they are light, strong and easily operated. Sold by responsible Hardware Dealers everywhere in Canada. Catalogue mailed on request.

TAYLOR-FORBES, Company, Limited

GUELPH, Canada

The Poultry Yard

F. C. Elford, Experimental Farm, Ottawa

Though February is not by any means the hardest month of the year to get eggs, still in most parts of Ontario it is a month in which we look for cold weather, and because of that it is usually somewhat trying on the layers. The cold weather, however, should not have a detrimental effect upon the pullets, if care is taken that the house is properly shielded. It is not necessary to have a warm house, or even a house in which water will not freeze, but it is necessary to have a house through which the wind does not blow. Though the air may be admitted in the front of the house, the other three sides should be wind proof. Take a look through your henhouse and see that the north side, and the two ends, are well battened. If this is not the case, take building paper and neatly line the inside of the house. Do it, however, with as little excitement as possible, as undue noise or commotion in a pen of pullets may mean a good many dollars loss in eggs.

Dampness.

At this time of the year, on days when the weather is cold, too many poultrymen in wanting to provide against dampness, close up the poultry house, so as to keep the hens warm, and as a result dampness is experienced. There are two ways to get rid of dampness, either by putting a stove in the building, or giving better ventilation. Though at one time the stove was used, it is not by any means to be advised. The better plan is to open up the front of the house and give the house lots of fresh air, which should be introduced by ventilation without draught.

The south side of the poultry house should have practically no solid wall, except about eighteen inches up from the floor, which is there merely for the purpose of keeping the draught away from the hens when they are scratching on the floor. From that to the roof we should have cotton and glass. Our experience here shows that about one third glass to two thirds cotton is a good proportion. Both glass and cotton should be hinged so that it can be opened up whenever the sun shines.

It is also a good plan, where the ceiling is high, to have a straw loft. This can be done by putting a few boards about six feet from the floor and covering them with straw. The straw will allow the air to filter through, but not fast enough to cause a draft.

Feeding.

It is not a good plan to change the method of feeding at this time of the year. A suitable system should have been started when the pullets were placed in the pens, but in case the system is not good, then the sooner it is changed, the better, and in adopting any system one must consider the local conditions and the amount of work it will entail. A good system, which many use, is to feed grain night and morning in a heavy litter on the floor, and dry mash in a hopper, or a wet mash, once a day.

Grain mixtures may be composed of two parts wheat, 1 part corn, one part oats, or barley, or if corn is not available and buckwheat can be obtained, it might be fed instead. The wheat should be good feeding wheat, that is, wheat in which the grains are solid, and not that in which there is a considerable portion of dirt, and the only oats to feed hens should be plump and heavy.

Feed this grain, but throw it on the litter in the morning between seven and eight

Carters Tested Seeds Inc.

Write for our 1916 Catalogue of Garden, Lawn, and Farm Seeds. Prices substantially reduced. Stocks as good as ever.

Dept. A. 133 King St. East TORONTO, ONT.

Strawberry Plants that Grow

Selected plants. All standard varieties $3.50 to $6.00 per 1,000. Send for list.

Ontario Nursery Co.

WELLINGTON, ONTARIO.

GLADIOLI

Gladioli are now among the most popular of summer cut flowers. We grow about five acres, largely Groff's collections and Groff's named varieties: Peace, War, America, Blue Jay, LaLuna, Peachblow, Lavandula, and many others.

We make up special collections for Horticultural Societies.

We also grow Paeonies, Dahlias, Perennials, Flowering Shrubs and general Nursery Stock.

Write for Catalogue.

CAMPBELL BROS.

SIMCOE, ONT.

o'clock, and in the evening long enough before dark that the hens will get a good feed before they wish to go to roost. As to how much to feed depends upon the birds. Feed just what they will clean up, and whether you are feeding too much or too little can be easily ascertained by examining the litter. Scrape a little of the straw off the floor, and if you find any quantity of grain on the floor you are feeding too much, on the other hand, if there is practically no grain, you are not feeding enough. The hens should have just enough grain to keep them scratching and not enough that they will become discouraged and not scratch.

As a rule the dry grain does not contain enough protein for the high production of eggs and the lack should be made up in some other way. This is frequently done by feeding a mash. The mash may be fed dry or, as is the case in some small flocks where there is plenty of table scraps, it might be mixed with the scraps and fed in a moist condition. In this case a mash mixture of the following: One part bran, two parts shorts, one part corn meal or oats, makes a good feed. If, however, the oats in use are not very good, the hull should be removed. This dry material can be mixed in with the table scraps and milk and fed at noon, just what the hens will clean up in about twenty minutes. Should it not be possible to use table scraps, put the dry mash into a self-feeding hopper, where the birds can have free access to it, and add to the dry mash ten per cent. of good beef scrap.

One of the most valuable poultry foods is milk. Skim milk or buttermilk will bring a better price in new laid eggs than in any other product, and if milk is at all available, it ought to be given to the hens. Milk is used to advantage in the mixing of wet

BEST GLADIOLI

Half Price. February only.

Mrs. F. Pendleton, said to be the finest of all, very large, wide-open flower, delicate salmon pink, red mark in throat. 15 cents.

Myrtle—the Queen of Gladioli, most lovely of all, the most beautiful pink in Gladiolus. 30 cents.

Europa—the purest of whites, white as lily. 15 cents.

Peace—the grandest white. 10 cents.

Schwaben—the strongest growing, largest flowering yellow on the market. 20 cents.

War—blood red, unrivalled for vigor, size of bloom and brilliancy of color. 15 cents.

All home grown, superior to the imported stock usually sold.

H. P. VANWAGNER,

R. R. No. 5 - - Hamilton, Ont.

PRIZE DAHLIAS

Grown in Canada.

Twenty named varieties, $1.00. Fifteen choice named varieties, $1.00. Ten Giant prize-winners, all correctly named, $1.00. Four different colors, 25c. All are field-grown roots. Postpaid. Send for Catalogue of over 200 beautiful varieties.

MISS G. S. DOUGLASS, Buctouche, N. B.

GLADIOLI BULBS

	Per 100.
America, Light Pink.	
" Bulbs 1 3-4 in. and up	$1.75
" " 1 1-2 in. to 1 3-4 in.	1.50
" " 1 1-4 in. to 1 1-2 in.	1.25
" " 1 in. to 1 1-4 in.	1.00
" " 3-4 in. to 1 in.	.80
Napoleon—Bright, Brilliant Red, with markings of cream and maroon.	
Napoleon, Bulbs 1 1-4 in. to 1 1-2 in.	1.50
" " 1 in. to 1 1-4 in.	1.25
" " 3-4 in. to 1 in.	1.00

50 or more at 100 rates. By express at purchaser's expense. All bulbs my own growing.

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NEWCASTLE-ON-TYNE

is the HUB of one

of the most densely populated and prosperous districts in the United Kingdom.

An Excellent Market for Canadian Growers.

We want regular weekly shipments of the best apples and pears. Our wide connection enables us to dispose of it at excellent prices.

Full particulars of quantities and varieties sent on request.

Cables—LONGFIELD, NEWCASTLE-ON-TYNE. A.B.C. Code, 5th Edition.

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12-14-16-22 Green Market, NEWCASTLE-ON-TYNE, ENGLAND.

Established 1868.

For the Land's Sake

Use the best Manure and get

GOOD CROPS

For Nurseries, Fruit Growers and Gardeners.

Sure Growth Compost

(A Composition of all Natural Manures)

Makes poor land fertile and keeps fertile land most productive.

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Say you saw this ad. in The Canadian Horticulturist

Spraying Pays

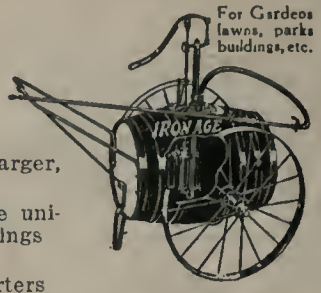
BECAUSE it saves your original investment so that it can produce at a profit each year.

BECAUSE it keeps trees and plants healthy so that they not only produce regularly but you get a larger, more uniform and better quality crop.

BECAUSE only sprayed trees, for instance, produce uniformly good fruit, and good fruit brings a fair price at any time.

BECAUSE it keeps stock quarters healthful and prevents infection and spread of disease. An ounce of prevention beats a pound of cure any day.

It not only pays to spray, but it pays to do it thoroughly, with first class machinery and with the right machine for each purpose.



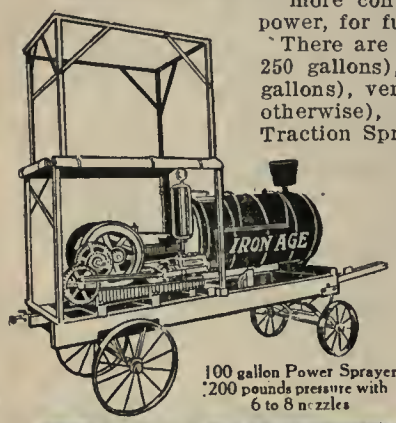
20 gallon Sprayer.

50 gallon capacity.

IRON AGE Sprayers

are built with that choice in view—a large number (70) of styles and combinations, most of which can grow to more convenient and more efficient uses, and greater power, for future growth in your spraying operations.

There are in this line Power Sprayers (50, 100, 150 and 250 gallons), Horizontal Barrel Sprayers (20, 50 and 100 gallons), vertical Barrel Sprayers (50 gallon, mounted or otherwise), Bucket, Knapsack and Hand Sprayers, and Traction Sprayers for field use in row crops.



100 gallon Power Sprayer
200 pounds pressure with 6 to 8 nozzles

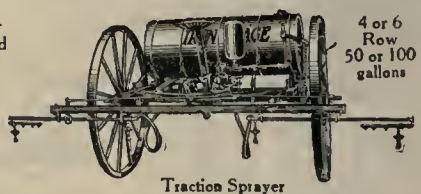
Outside Pumps, high pressure, bronze ball valves, hemp packing, all parts easily got at, solutions touch brass parts only, thorough mixing, a fine system of straining sediment, nozzles that put the spray on as it should be, and nozzle strainers for further protection—these things characterize Iron Age Sprayers throughout.

We have agencies in all parts of the country with the most intelligent dealers. See the nearest one and in the meantime write us for "Spray" booklet and a spraying guide.

The Bateman-Wilkinson Co., Limited
466 Symington Ave., West Toronto, Ont.

150 gallon Power Sprayer

For Field use



4 or 6 Row 50 or 100 gallons
Traction Sprayer

SMALL FRUIT PLANTS.
GOOSEBERRIES—Josselyn, Red Jacket, Downing, Pearl, Houghton. CURRANTS—Perfection, Ruby, Cherry, White Grape, Lee's Profile, Champion, Black Naples, Black Victoria, Boskoop Giant. RASPBERRIES—Herbert, Plum Farmer, St. Regis, Cuthbert, Marlboro, Golden Queen, Brenekles Orange. GARDEN ROOTS, Strawberry Plants, Rhubarb. Write for Catalogue.
WM. FLEMING, Nurseryman, 496-4th Ave. W., OWEN SOUND, ONT.

STRAWBERRY and all other small fruit plants **SEED POTATOES**

Our great new Strawberry "Grand Prize," the best Fall-Bearing kinds, and 50 others. Herbert, Eaton, St. Regis Everbearing and other best Raspberries, also Blackberry, Currant, Gooseberry and Grapes.
Splendid stock of Cobbler and Green Mountain Potatoes.

DESCRIPTIVE CATALOGUE FREE

H. L. McCONNELL & SON - - - Port Burwell, Ont.

mash when the wet mash is preferred.

Green food must be supplied for poultry when they cannot obtain it themselves. This can be given in the shape of roots, such as mangels, beets, turnips, or vegetables, such as cabbage, or if none of these are available, nicely cured clover leaves or sprouted oats answer, but green food of some kind should be available. If roots are fed it is a good plan to split the root down the centre and allow the hens to pick out the pulp.

Niagara District Notes

F. C. H. Pattison, Winona, Ont.

The winter has been favorable to pruning operations, and a great deal has been done in the Winona and Grimsby sections. In a number of vineyards the work has been finished, and in some of them the brush has been removed. A lot of tree pruning has also been accomplished. On large fruit farms, teaming has been suspended and the permanent staff has been employed in pruning almost exclusively.

On January 7th a number of the heads of co-operative fruit companies in the Niagara Peninsula, with some of the dealers and growers, met in conference with Messrs. F. C. Hart and J. B. Fairbairn, of the Markets Branch of the Ontario Department of Agriculture, in an endeavor to map out a comprehensive and satisfactory scheme for a central organization to control at least 60 per cent. of the fruit output of the Niagara district. Two different schemes were discussed, but no decision was reached. The standardization of baskets was also considered. Most of those present were in favor of a pint berry box and a four-fifth quart box. Climax baskets were generally favored. The present 6-quart basket and a deeper 11-quart basket were also in general favor. A number fancied the 9-quart, and others wished the retention of the present 11-quart basket for plums and cherries.

On January 8th a well-attended meeting of the Niagara Peninsula Fruit Growers' Association was held in the Court House, St. Catharines. The meeting opened with a short address on "The Standardization of Fruit Baskets," by F. M. Clement, of Vineland, in which he pointed out the great need of standard baskets for the packing and shipping of fruit. A general discussion showed that most of the members were in favor of the following packages: The bushel basket, the climax basket, the four-fifth quart and two-fifth quart berry boxes, and the standard apple, plum, and peach long distance shipping crate. A strong committee was named to investigate and determine the sizes of climax baskets best adapted to fruit shipping and to report at the annual meeting. Mr. Haycock, of Winnipeg, spoke in the interests of the Winnipeg retail dealers, urging a standard 6-quart climax basket.

A meeting of the Lincoln and Welland Vegetable and Fruit Growers' Association was held in St. Catharines on January 8th. It was decided that there should be no more tomatoes raised and sold at 25 cents per bushel, and that the canning factories must not regulate the grower's sale price on that product in future. An address on combination and co-operation was delivered by Thos. Delworth, of Weston, who attached a great deal of importance to the need of growers being able to determine the cost of production. He advocated the establishment of a central headquarters, where information could be procured by the growers with a

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Everything from an apple tree to a strawberry plant—shade, ornamental and evergreen trees, ornamental shrubs and vines, roses, hardy flowering plants, bulbs, asparagus—guaranteed stock at reasonable prices. 2c stamp for catalog. Silver black foxes, fishers, mink.

DOWNHAM BROS., Box E, Strathroy, Ont.

NORTHERN GROWN FRUIT TREES FOR NORTHERN PLANTERS

At Lowest Prices consistent with Sterling Quality.

ALBERT NURSERIES, Albert, New Brunswick

Deep Seedbeds Properly Prepared

—That's what you get when you use the deep-cutting, double-turning, leveling and compacting

"Acme" Pulverizing Harrow

"The coulters do the work"—you should see them mix the soil, cut clods, weeds and trash and make the whole into a firm yet mellow seedbed several inches deep. The "Acme" is simple, durable and easy to pull. Sizes 3 ft. to 17 1-2 ft. wide. Thousands in use. Send for booklet *now*.

No 23. 6½ ft. wide

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Kelly's TREES

Guaranteed to "MAKE GOOD"

That means a lot to every buyer—guaranteed Sturdy, Healthy and true to name by a firm that has been growing trees right for 32 years—Apple, Pear, Peach, Plum, Cherry and Quince Trees, also Small Fruits and Ornamental Stock.

Direct to You at Grower's Prices

Quality before price is our motto, but our personal supervision of all trees from our nurseries to you, together with up-to-date facilities, enables us to sell **Kelly Trees at low prices.**

Our catalog tells all about our trees and prices. It is our only salesman, and you can order from the catalog just as well as if you visited us here in Dansville—Why not do both?

Write for catalog to-day—It's worth while.

KELLY BROS., Wholesale Nurseries

147 Main Street, Dansville, N. Y.

You'll never regret planting Kelly Trees.

view to establishing a standard price. He held that the association should endeavor to help the growers avoid losses. The growers, too, should realize their situation, and join either one or both of the local organizations.

On January 13th, the regular annual meeting of the Niagara Peninsula Fruit Growers' Association was held in the Court House, St. Catharines. Retiring President, R. H. Dewar, of Fruitland, occupied the chair. The financial report showed the total receipts for the year to be $994.24, and expenditures $625.91, leaving a balance on hand of $368.33. The chief subject of discussion was the question of a change in the 11-quart peach basket, to permit its holding three layers of No. 1 peaches by taking in the flare, using the same bottom, but giving a quarter inch added height. The meeting passed a resolution favoring the amended 11-quart basket recommended by the committee, but referred the question back to the committee for further consideration.. W. H. Bunting, of St. Catharines, explained the style of basket necessary. In packing No. 1 peaches, the present height of basket is not high enough. If the height of the basket were increased from one-eighth to one-quarter of an inch, and the flare at the ends of the basket reduced to the same amount of flare on the other side, making a flare of one-quarter inch all round, the best interests of the fruit growers would be served. David Allan, of Grimsby, was strongly in favor of the change, declaring that the marketing public does not want two-layer baskets any longer. Many of the members felt that the present standard 11-quart was an ideal package. President Dewar contended that in the majority of years the present basket would easily accommodate No. 1 peaches. He had no objection to cutting an inch of the flare off the ends of the basket. Complaint was made of the changes in the sizes of basket covers by different firms, and a suggestion made that the association take up the question, and ask the Government to standardize the basket covers. The matter was referred back to the committee without any definite conclusions being reached. Officers for the ensuing year were elected as follows: President, J. H. Broderick, St. Catharines, 1st Vice-President, J. R. Hastings, Winona; 2nd Vice-President, S. H. Rittenhouse, Jordan Harbor; 3rd Vice-President, D. Allan, Grimsby; 4th Vice-President, F. J. Stewart, St. Catharines; Secretary-Treasurer, C. E. Fisher, St. Catharines, elected for the 20th year.

A case of considerable interest to fruit growers was decided at the Wentworth County Court recently, when the jury found S. H. Rittenhouse, a well-known fruit grower, of Vineland, not liable for the injuries sustained by Mike Lukatchik, while working on defendant's farm. The plaintiff was engaged in spraying trees last spring for the defendant, and claimed damages for injuries he suffered when septic poisoning developed in his right hand, due, he alleged, to the mixture used in spraying. He charged negligence on the part of his employer for not supplying gloves before the poisoning set in. The defence was that it was not the custom of farm laborers to wear gloves, and that this was the first case of poisoning known, although the mixture was a standard one, and had been in use by fruit farmers for years.

Mr. R. L. Innes, Hamilton, formerly secretary-treasurer of the Dominion Canners, has been appointed general manager, in room of J. J. Nairn, who resigned on account of ill-health.

Potatoes are scarce and prices have risen

Order

Canadian Grown Nursery Stock

direct from our Nurseries, and save all middlemen's profits. Write at once for our catalogue and price list of fruit trees, small fruits, Roses, Shrubs, etc. Address

J. H. McCOMBS, UNION NURSERIES, Fonthill - - - - Ontario

FREE

30 ROSES 3S SHRUBS 3S WHITE CLEMATIS

The first 100 who will send us their name and address, not already on our mailing list, will receive free one of the above plants and our new interesting spring catalogue. Write to-day.

A. W. GRAHAM, St. Thomas, Ont.

Grower and Importer of Roses, Shrubs and everything beautiful for garden and lawn.

What You Want In A Spraying Out it!

The first essential is thorough spraying efficiency, then freedom from defects, durability, service and dollar-for-dollar value. All this and more you get in the

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It isn't a SPRAMOTOR unless we made it

The supremacy of the SPRAMOTOR in every class is unquestionable. Every machine bearing the name is built to endure. Its exclusive patented features will compel you to pronounce it the best you ever saw. Write for illustrated treatise to-day—FREE.

Made in Canada
No Duty to Pay

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FLOWER POTS

We have a Large Stock of all sized

FLOWER POTS

FERN OR BULB PANS

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RIMLESS PANS

Orders Filled Promptly. Send for Prices.

The Foster Pottery Co., Ltd.

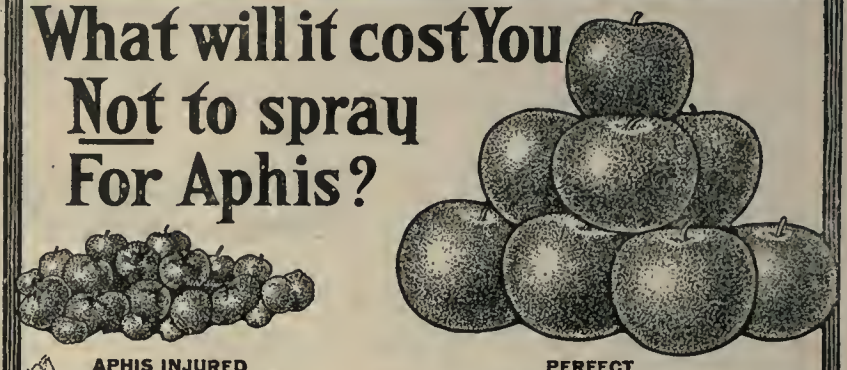
HAMILTON, ONT.

WHOLESALE PRICES

On strawberry plants to the planter. And other kinds of small fruit plants at very low prices. Such as Raspberry, Blackberry, Currants, Gooseberry, and Grapes; also best kinds of Rhubarb and Asparagus Roots. 23 years' experience in propagating and shipping small fruit plants. There are no better plants grown in Michigan. Everything fully guaranteed. Large illustrated and descriptive catalogue free.

A. WESTON & CO., Bridgman, Mich.

What will it cost You Not to spray For Aphis?



APHIS INJURED PERFECT

The U. S. Dep't of Agric. Says $30,000,000

Is the annual damage done to the American fruit crop by insects. Aphis causes a considerable part of this loss and the standard insecticide recommended by experiment stations and spraying experts for this and many other orchard pests is

"BLACK LEAF 40"

Guaranteed to contain 40% Nicotine

THIS IS THE TIME TO SPRAY for Apple Aphis—just as the leaf buds show green. Don't delay till the foliage gives the Aphis protection. Use "BLACK LEAF 40" when buds are like the one shown in this picture. Write us for Apple Aphis Bulletin.

"BLACK LEAF 40" is not recommended for all insects; but for Aphis, Pear Psyla, Hop Louse, and many other soft-bodied sucking insects it has proven to be a highly effective and a very economical insecticide.

LET US HELP YOU PROTECT YOUR ORCHARD

If your dealer will not supply you with "Black Leaf 40", send us P. O. Money Order for $2.50 and we will send you, express prepaid, a 2 pound can that will make 200 gallons of effective spraying solution. If you are in doubt about the insecticide you need, write us, send specimens, or give descriptions of your insect enemies and we will help you to find the proper insecticide.

KENTUCKY TOBACCO PRODUCT CO. Dept. A., Louisville, Ky.
INCORPORATED

RENNIES SEEDS

PUREST-CLEANEST
MOST RELIABLE
GET CATALOGUE
AT BEST DEALERS
OR DIRECT
TORONTO - MONTREAL
WINNIPEG - VANCOUVER.

accordingly. On the Hamilton market they have been retailing at $2.25 to $2.50 a bag, and $3.00 is talked of. Apple prices are steady and good apples are in demand, but a lot of inferior apples are coming on the market.

The annual meeting of the Burlington and Nelson Horticultural Association was held during the middle of January in Burlington. A committee was appointed to secure new members for the purpose of enlarging the organization. Geo. Blair and Paul Fisher were appointed to look after the purchase of spray material this year. The following were elected as officers and directors: President, H. T. Foster; Vice-President, G. S. Freeman; Sec.-Treasurer, W. E. A. Peer; Directors: W. F. W. Fisher, W. V. Hopkins, J. S. Freeman, R. C. Fowler, A. W. Peart, and Arthur Lindley.

Problems of Fruit Growers

DIFFICULTIES that confront Ontario fruit growers were discussed in a helpful way at meetings of fruit growers held in connection with the recent Lambton County Horticultural Exhibition. In this connection Mr. D. J. Johnson, Dominion Fruit Commissioner, Ottawa, outlined work his department has undertaken on behalf of fruit growers.

When Mr. Johnson took office a little over a year ago the inspectors appointed to adminster the Fruit Marks Act were regarded by the growers as spies. They worked in large centres, and men who were ignorantly violating the Act were frequently summoned. To-day the inspectors are going up and down the concessions and side roads educating growers how to pack and ship their fruit. Inspection is being made at the point of shipment, and where asked for, certificates are issued to the shipper of the car. In this way the inspectors are coming to be regarded as the growers' friend. The matter of fruit packages is now being considered by the Department. There is great difference of opinion among growers on this point, and Mr. Johnson stated that the question would be discussed at a series of fruit conferences before action would be taken.

Advertising fruit as an article of daily use rather than a luxury is being actively taken up by Mr. Johnson. Increasing quantities of fruit are being placed on the market every year, and the grower must not look for high prices. It is better to move all the crop at a fair price and let the consumer have more fruit for his money. During the past year fruit advertisements appeared in almost every paper in the Dominion. The consumer was advised as to the quantity of fruit, when best to preserve fruit and what are the most desirable varieties. New ways of cooking and preparing fruits are also being brought to the attention of the housewife.

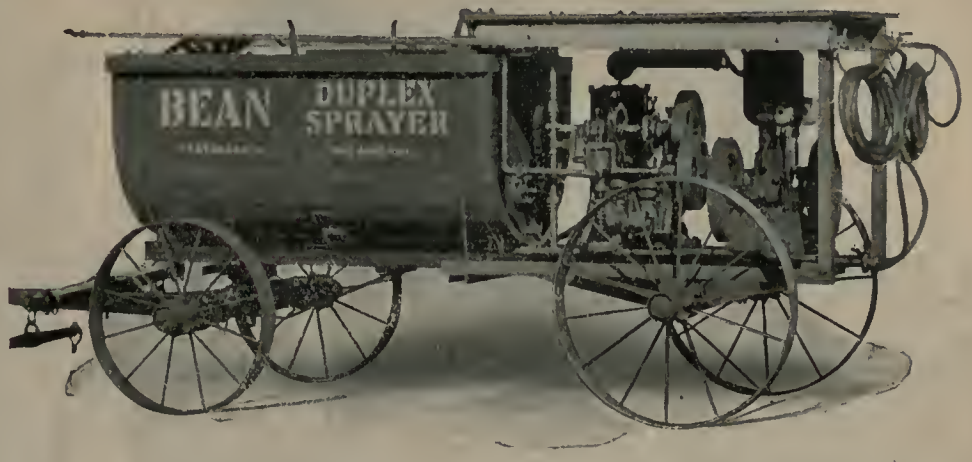
Efforts are being made by the Dominion Fruit Branch, in conjunction with the Department of Trade and Commerce, to open new markets for Canadian fruits. Forsyth Smith, a successful British Columbia fruit grower, has been placed in an office in Liverpool, and has started a campaign to place more Canadian fruit on the English market. When conditions abroad are more normal, men will be placed in other large centres of consumption. Cold storage transportation for tender fruits is also being arranged. It is hoped by this means to create markets for the enormous crop which will be produced in Canada in the next few years.

Carefully prepared and accurate tele-

THE PUMP THAT LEADS THE WORLD

—that was awarded the Grand Prize and the three Gold Medals in open competition with the entire world at the Panama Pacific Exposition in 1915, is the justly famous

BEAN



This, remember, against all manner and makes of machines, in 1915 (not 20 years ago).

This pump has ten big, special features, one notable feature which should interest every spray pump buyer is the patented Pressure Regulator. It is the greatest single improvement since power sprayers came into general use. It reduces wear and tear 45%—and saves 1-3 in gasoline. It maintains any desired pressure, whether nozzles are open or closed. It eliminates 90% of the troubles so common in other power pumps.

All Bean Pumps are **direct gear** connected to engine—pumps driven by eccentrics, **NOT** worm driven, **NO** cranks.

Our illustrated catalogue, which is free, explains the other important features.

Investigate Now For Yourself.

Ask about Bulletin No. 4—Practical Experiments with Soluble Sulphur.

THE NIAGARA BRAND SPRAY CO., Limited, Burlington, Ont.

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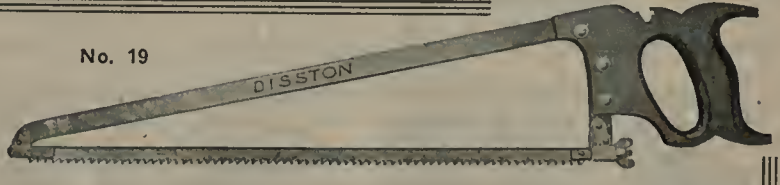

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—a line comprising styles and sizes for every requirement, all backed by a reputation for Highest Quality and Satisfactory Service.

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Don't wait until the last moment and then be forced to use whatever saws your dealer may have left in stock; make your selection now and get the saws exactly suited to your requirements.

HIGHEST AWARD SAWS TOOLS FILES DISSTON SAN FRANCISCO PAN-PACIFIC EXPOSITION

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Our Pruning Saw Catalog will help in your selection. Write to-day for a copy.

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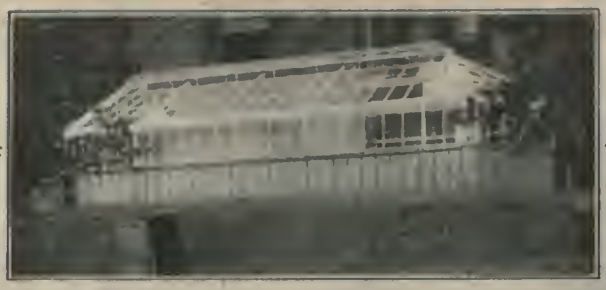

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Erected Anywhere in Canada

Our enlarged facilities now enable us to offer the advantages of our thorough workmanship and knowledge, for the building of greenhouses **anywhere** in Canada.

This is vitally important to those who formerly had to submit to high American prices or forego the delights of a greenhouse with its flowers and hothouse vegetables at any time in the year.

To those unacquainted with the superior advantages of our greenhouses we will gladly send Booklet B. It is full of suggestions for the man who finds himself deprived of the pleasure of the garden at the passing of Summer. Write for it.

GLASS GARDEN BUILDERS, Limited

201 Church Street, TORONTO

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STRAWBERRIES **Summer and Fall Bearing and all Berry Fruit Plants**

We are headquarters for Summer and Fall Bearing Strawberry Plants Raspberries, Blackberries, Gooseberries, Currants, Grapes, Fruit Trees, Roses, Ornamental Shrubs, Eggs for Hatching, Crates, Baskets, Seed Potatoes, etc. The very finest stock at rock-bottom prices! 32 years' experience.

Our catalog contains valuable information for fruit growers. Send for it to-day—it's free.

L. J. FARMER, BOX 696, PULASKI, N. Y.

BRUCE'S DOMINANT SEEDS

Just as the British Fleet dominates the World's waters, so "BRUCE'S SEEDS" are the dominant ones with the planter whose living depends upon "Real Seeds."

It will be even more apparent at this time, when many seeds are in short supply, that there will be more stocks offered by unreliable and inexperienced growers than in the past, and that houses with long established reliable connections such as we possess will have an incalculable advantage.

Why take a chance, when you can buy "The Best Seeds that Grow"—BRUCE'S—for very little more than so-called "cheap" seeds?

It costs as much to plant and care for poor seeds as good ones, and you have very meagre, unsatisfactory results to show in return for your labor.

CHEAP SEEDS ARE DEAR IF YOU GET THEM FOR NOTHING.

Send for our 128 page Catalogue of Seeds, Plants, Bulbs, Poultry Supplies and Garden Implements, full of valuable information, which is now ready and will be mailed FREE to all applicants.

JOHN A. BRUCE & COMPANY, LIMITED

HAMILTON **Established 1850** **ONTARIO**

graphic reports are compiled twice weekly at the office in Ottawa and mailed to every grower in the Dominion. Many fruit dealers resent this action, stating that it is the growers' business to produce the fruit and let the dealers look after the marketing. Mr. Johnson views the matter differently, and says it is the object of the Department to give the smallest fruit grower in the Dominion as much information on the fruit situation as the largest dealer or shipper.

British Columbia

The war in Europe is apt to have a disastrous effect on one branch of the fruit industry in this province next year, judging from the fact that about 80 per cent. of the expert fruit packers in the province have enlisted. The Provincial Government is endeavoring to deal with this situation by holding as many packing and pruning schools this winter as possible.

Recently only about twenty applications for schools had been received by the Department. This is not considered to be nearly enough to meet the demands of the situation, and the fruit growers of the province are being urged to do all they can to encourage pupils to attend in the expectation that their services will be urgently required next fall.

Bulletins and Reports.

Recent bulletins and reports which have reached The Canadian Horticulturist include the following: The November issue of The Manitoba Horticulturist, which is published by the Manitoba Horticultural and Forestry Association: Bulletin No. 24 on Fruit Tree Diseases of Southern Ontario, by W. A. McCubbin, of the Dominion Plant Pathological Laboratory, St. Catharines, Ont. This is one of the second series of bulletins on this subject. The Twenty-ninth Annual Report of the Commissioners of Queen Victoria Park, Niagara Falls, Ont., gives an account of the work accomplished during the past year. Excellent work is being done at this park, which is becoming national in character.

The New Jersey Agricultural Experiment Station, New Brunswick, N.J., is distributing circulars on "Marketing White Potatoes in New Jersey" and "Marketing Tomatoes in New Jersey," by Charles M. Arthur. Circular No. 153, on "Mushrooms, Edible and Poisonous," by D. C. Babcock, and Circular No. 154, on "Some Important Insect Pests of the Greenhouse," by R. D. Whitmarsh, are being sent out by the Ohio Agricultural Experiment Station, Wooster, Ohio.

Bulletin No. 160, on "Grape Pruning" and Research Bulletin No. 21, on "Hardiness in the Apple as Correlated with Structure and Composition," are being distributed by the Horticultural Experiment Station, Ames, Iowa. Bulletin No. 186, on "Farm Apple Storage," is issued by the Vermont Agricultural Experiment Station, Burlington, Vt., and Bulletin 37, entitled "Germination and Infection with the Fungus of the Late Blight of Potato," by the Agricultural Experiment Station, Madison, Wisconsin. These last circulars are well illustrated and will be found of interest and value.

The Wisconsin Agricultural Experiment Station, Madison, Wis., gives the results of experiments in the control of cabbage yellows through disease resistance in Research Bulletin 38. "Pink and Green Aphid of Potato," is the title of Bulletin 242 of the Maine Agricultural Experiment Station, Orono.

The N. S. Fruit Growers' Convention

WITH the holding of the annual convention of the Nova Scotia Fruit Growers' Association, the fruit growers of the Annapolis Valley feel each year that they have concluded the work of one season, and they begin to plan for the season that lies ahead. This year's convention was held at Wolfville, January 18th to 20th. It included new features such as a public debate, on the subject "Resolved that the general adoption of mixed farming, by which is meant the keeping of live stock, and the raising of feed for the same, in addition to fruit growing, is in the best economic interest of the farmers of the fruit growing counties of Nova Scotia." The leaders for the affirmative were: F. W. Foster and R. J. Messenger. The negative leaders were: W. H. Woodsworth and A. E. MacMahon. Dr. G. B. Cutter, of Acadia, acted as judge.

The speakers brought out many interesting features. Others later joined in the discussion. Mr. S. B. Chute, speaking in favor of specialized fruit growing, showed a gross

ROUGH ON RABBITS

Will protect young fruit trees from rabbits when the snow is deep. Directions with each package. Put up in three sizes—small size 60c., for 25 to 35 trees; second size $1.10, for 80 to 90 trees; largest size, 20 lbs., for 500 to 700 trees, price, $5.00. All orders promptly attended to.

KING AGENCY King P.O., Ont.

Italian Queens

Three-Banded

Ready April 1, of an exceptionally vigorous and long-lived strain of bees. They are gentle, prolific, and the best of honey gatherers. Untested, $1.00; 3, $2.75; 6, $5.00; 12, $9.00. Tested, $1.25; 6, $6.50; 12, $12.50. Send for my free circular and price list, and see the natural conditions under which my queens are raised. Will book orders now.

JOHN G. MILLER, Corpus Christi, Texas.
Corner C St., and Coleman Ave.

Practical Tools

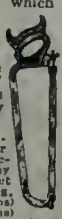
For Profitable Pruning

Horticulturists have practically designed Bartlett Pruning Tools. Their suggestions and their own experience have combined to produce pruning tools of quality that are in world-wide use among successful horticulturists.

Bartlett Pruning Tools

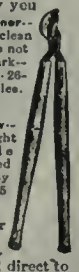
Strong, Durable, Easy Cutting

There are several styles of Bartlett Pruners—three are described briefly herewith. No matter which one you buy you can be certain it is carefully made from the best of materials and is fully guaranteed.



Two-Hand Pruner--(No.777) cuts clean and easy--does not wound the bark--right-handed--26-inch ash handles. $2.00 prepaid.

Pruning Saw--(No. 18) light weight--blade quickly turned to cut at any angle. $1.75 prepaid.



Jointed Tree Trimmer--(No. 4) compound lever head--handle in 4-foot sections--can be made any length desired up to 16 feet--simple, convenient, strong, durable. 8-foot (2 sections) $3.00; 12-foot (3 sections) $3.25; 16-foot (4 sections) $3.50, prepaid For long pole deduct 50c on each length.

Most dealers carry a complete line of Bartlett Pruning Tools. If yours does not, send direct to us. We'll see you are supplied promptly. Send for catalogue and free booklet on "How and When to Prune." BARTLETT MFG. COMPANY,
15 Lafayette Ave. East, Detroit, Mich.

You Can Grow Prize Fruit by

SPRAYING

your fruit trees with the right sprayer.

Over two hundred prize winners at last year's Fairs were growers who used our Sprayer last Spring, and who followed our directions about when and how to spray trees.

Your orchard can be made to produce three times its last year's yield, and the extra profit will add many dollars to your bank balance if you spray with the

I. X. L. JUNIOR Automatic Power Sprayer

Weight, 450 lbs.

The I. X. L. Junior is made in two styles. It consists of a 3½ H.P. Engine, cypress tank, gear driven vertical cylinder pump, two 25 ft. leads of Hose, two visible spray nozzles, complete in all details.

I. X. L. with 100 gallon tank, $165.00
I. X. L. with 150 gallon tank, 170.00
I. X. L. with 200 gallon tank, 180.00

For rough or hilly orchards, common in some parts, the machine which best fills the requirements is our back-mounted

Pontiac Special

Automatic Power Sprayer

This machine is equipped with the same engine as the I.X.L., and is made with two size tanks.

150 Gallon Tank, 50 ft. Hose, 2 poles $200.00
200 Gallon Tank, 50 ft. Hose, 2 poles $210.00

We have prepared a valuable booklet entitled, "Prize Fruit and Vegetables from your Orchard and Garden," which is free to all farmers, fruit and vegetable growers. Use the coupon and send for your copy to-day.

Canadian Sprayer Co.
TRENTON, ONTARIO

Canadian Sprayer Co., Trenton, Ontario.
Dear Sirs:
Kindly send me your free book.
Name.....
P. O.....
Number of trees in orchard .....

The Satisfaction and Profits of Gardening

are just in proportion to the quality of the seeds you plant! If you are ambitious to produce prize-winning vegetables and record crops —or if you simply aim to keep your table supplied with the best—be sure to get

Ewing's
Reliable Seeds

Forty-five years of success in amateur and market gardens have proved Ewing's to be sure in germination, vigorous in growth, true to name, and of choicest strains.

Our new 1916 Catalogue, with its handsome 4-color cover, is bigger and finer than ever. Write for a copy at once, (it's free) and if your dealer hasn't Ewing's Seeds, order from us direct.

The William Ewing Co. Limited
SEED MERCHANTS 48
McGill Street - - Montreal

10-15-20
Years from now the Bissell Silo will be giving good service. It is built of selected timber, treated with wood preservatives, that prevent decay. It has strong, rigid walls, air-tight doors, and hoops of heavy steel. Therefore it lasts, simply because it can't very well do anything else. Our folder explains more fully — write Dept. N.
T. E. BISSELL CO., Ltd., Elora, Ont.

See advt. also on page IX

income for 1915 of $21,440, and an expenditure of $11,275, leaving a net balance on the year's work of $10,165. Nevertheless, the judge decided in favor of the affirmative.

Officers Elected.

The election of officers resulted as follows: President, F. A. Chipman, Nictaux; Vice-President, Prof. W. S. Blair, Kentville; Secretary, Manning K. Ells, Port Williams; Assistant Secretary, F. W. Foster, Kingston; Treasurer, Geo. W. Munro, Wolfville; Executive, A. S. Banks, Berwick; S. C. Parker, Berwick; Fred. Johnson, Bridgetown; J. Elliott Smith, Wolfville. The Advertising Committee, A. E. MacMahon, F. W. Foster, S. C. Parker, E. H. Johnson and J. E. Shaffner, were reappointed.

The report of the secretary-treasurer, Mr. Manning K. Ells, showed total receipts of $1,063.44, and a cash balance on hand after all bills had been paid of $182.12.

President's Address.

President A. E. McMahon pointed out that in spite of the war Nova Scotia Fruit Growers had not suffered from existing conditions, but in many respects had been benefited. This was due in part to the fact that Nova Scotia had unusual advantages for the marketing of its apple crop, inasmuch as it was possible to land the apples of the province on British markets at lower prices than any other fruit growing district on the continent. The cost including such items as inland rail, ocean freight, dock dues, cartage, insurance, commission, and handling, of landing a barrel of apples from the Annapolis Valley, via Halifax in Great Britain last season was $1.90. From Cobourg, Ontario, the cost was $2.57; Forest, Ontario, $2.70; Portland, Me., from $2.43 to $2.68, and New York from $2.54 to $2.79. Nova Scotia growers therefore, had an advantage by virtue of their location of from 53c to 78c a barrel over the State of Maine, and 67c to 80c over Ontario.

The war has advanced the cost per barrel of shipping to Great Britain materially. From 1912 to 1913 the cost was $1.25 per barrel. In 1914 it was $1.40, and last year it jumped to $1.90. The shortage of labor in England, consequent upon the war, has made it difficult to unload apples promptly. The advertising campaign conducted by the Dominion Government was commended.

The Addresses.

A number of interesting addresses were given including one on "Sucking Insects of the Apple," by Prof. Brittain, and one on "Pruning," by Mr. M. B. Davis, of the Central Experimental Farm, Ottawa, both of which were illustrated by lantern views. Further mention of these addresses will be made in the March issue of The Canadian Horticulturist as well as of an address by Prof. Geo. E. Saunders, entitled "Results obtained at the Dominion Entomological Laboratory during 1915."

Owing to illness Prof. W. S. Blair was unable to be present, but two papers by him, one entitled "Fertilizing Orchards in Nova Scotia," and the other "Scab Control in the Dominion Experimental Orchards in Nova Scotia," were read by his assistant, Mr. Lindsay Bligh. Mr. W. H. Woodworth spoke on "Lessons Learned from New England Fruit Growers," and the subject "Commercial Strawberry Growing and Marketing," was dealt with by W. D. Fawcett, of Sackville, N.B., possibly the largest grower of strawberries in the Maritime Provinces.

The Economic Commission.

The convention passed two resolutions for submission to the Dominion Industrial and Economic Commission. One urged that the possibility of the increased production of dog

FREE Write us, giving some idea of your spraying needs and we will forward, absolutely free, a copy of our valuable illustrated work on CROP DISEASES, also full particulars of a

SPRAMOTOR

best suited to your requirements. We make SPRAMOTORS from $6 up. Write us to-day.

Made in Canada
No Duty to Pay

SPRAMOTOR WORKS
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Merryweather's Roses

are noted throughout the world.

They are cheap; they are true to name; the trees are strong and sturdy; the newest novelties and all the old favorites in stock.

Nurseries: SOUTHWELL ENGLAND

Roses for Garden
Roses for Exhibition
Roses for Beds
Roses for everywhere

STATE YOUR WANTS
and
CATALOGUE and QUOTATIONS
will be supplied by

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SOLE AGENT FOR DOMINION OF CANADA
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FREE LAND
For the SETTLER in
NEW ONTARIO

Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.

Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.

For full information as to terms, regulations, and settlers rates, write to

H. A. Macdonell
Director of Colonization
Parliament Buildings, TORONTO

HON. G. HOWARD FERGUSON,
Minister of Lands, Forests and Mines.
Parliament Bldgs., Toronto

fish fertilizer should be looked into, and the other the urgent necessity for placing all fertilizers on the free list, thereby enabling the farmer and fruit grower to cheapen production. The convention was a success throughout.

Niagara District Notes.

The Bell Fruit Farms Canning Factory at Grimsby has been rented by a new company, known as "Bells, Ltd.," for the purpose of making war munitions. About 75 men will be employed there this winter.

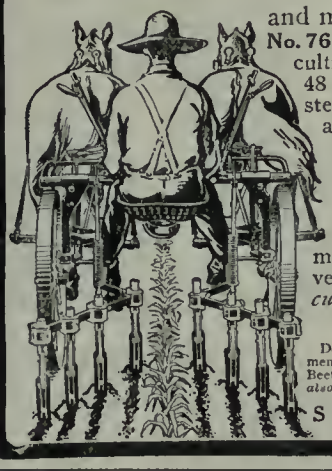
What with men enlisting and going to the cities to engage in munition work at high wages, it looks as though the fruit growers and farmers in this district would be up against the labor problem worse than ever during the coming season.

A new process of great commercial importance for the production of potash has been discovered by Howard F. Chappell, one of the leading chemists of the United States and President of the Mineral Products Co. Not only does the new process produce potash, but also aluminum, and both in quantities sufficient to make the labor profitable even in competition with the German market for the mineral. A mine in Utah, 200 miles south of Salt Lake City, is already in operation, about 25 tons of potash and 50 tons of aluminum being made every day from 100 to 150 tons of ore. Although the process is a new and secret one, the material is an ore that up to now has been considered valueless. It is alumite, from which potash alum is made, and which was used for that purpose before the Egyptian civilization. This ore is made to yield potash instead of alum by a process whose chief feature is intense heat.

Planet Jr. Cultivators

have no equal anywhere

They produce the best crops and biggest profits wherever used. The result of a half century's experience of a practical farmer and manufacturer. Fully guaranteed.



No. 76 Planet Jr Riding Cultivator plows, hills and cultivates corn, potatoes, or similar crops 28 to 48 inches apart. Specially hardened cultivator steels add 50 per cent to wear. Dust-proof steel axles. Pin-break or spring-trip standards. *Eight styles—lower prices than ever before.*

No. 9 Planet Jr Horse Hoe is better made, and capable of a greater variety of work than any other cultivator. Its great strength prevents breaking or bending; long frame makes it steady running; new steel wheel prevents clogging. *15 other styles of one-horse cultivators—various prices.*

New 72-page Catalog (184 illustrations) **free!**

Describes over 70 tools, including 12 entirely new ones, and improvements to our Seeders, Wheel-Hoes, Horse Hoes, Harrows, Orchard-, Beet- and Pivot-wheel Riding Cultivators. *Write postal for it today also for name of nearest Agency.*

S L Allen & Co Box 1106G Philadelphia

The Georgian Bay Tree Pruner

Saves in Many Ways
Every Orchard
Needs One

The Price is $2.50
Write to G W. BULL, Mfr., Wiarton, Ont.

BISSELL

Clean up that stony section of the farm with a Bissell Steel Stone Boat. Built of stiff steel with railing around edges; steel runners. Sizes 2, 2½, and 3 ft. wide. Different styles for all kinds of farm and stable work. Write Dept. N. for folder and prices.
T. E. Bissell Co., Limited, Elora, Ontario.
BISSELL STEEL STONE BOAT
See advt. also on page VIII.

RED CYPRESS HOT BED SASH

WE MANUFACTURE ALL KINDS OF

Greenhouse Construction Material

Hot Bed Sash and Frames

HOT BED SASH,
8 in. Butted Glass.
Size—3 ft. 2 in. x 6 ft. 0 in. for 4 rows.
8 in. Glass.
Price of above Sash, Clear Red Cypress Unglazed
$1.20

NOTE:
When Ordering, state whether for Lapped or Butted Glass.

HOT BED SASH,
10 in. Lapped Glass.
Size—3 ft. 0 in. x 6 ft. 0 in. for 3 rows.
10 in. Glass.
Price of above Sash, Clear Red Cypress Unglazed
$1.15

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Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign, or single letter to count as one word, minimum cost 30c., strictly cash in advance.

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ALL KINDS OF FARMS—Fruits farms a specialty. Write for Catalogue. W. B. Calder, Grimsby.

NIAGARA DISTRICT FRUIT FARMS—Before buying, it will pay you to consult me. I make a specialty of fruit and grain farms. Melvin Gayman & Co., St. Catharines.

FARMS—All kinds, all sizes, for sale, fruit stock, grain and dairy farms. Let me know what you are looking for. H. W. Dawson, Brampton, Ont.

WANTED—To hear from owner of good farm for sale. State cash price and description. D. F. Bush, Minneapolis, Minn.

THIRTY-FIVE ACRES, house, and orchard. Splendid beekeeping location. H. Twigg, Orangeville, Ont.

SEEDS.

Bulbs—1916 Catalogue now ready. Ask our special offer on Gladioli. State varieties and size you require. Van Til-Hartman, Hillegon, Holland, c|o P. C. Kuyper, 10-12 Broadway, New York, N.Y.

Canadian Grown Seed—Superior Tomato Seed, "Herolds Earliana," highest germination, hardier, producing earlier crops than others: 1-4 oz., 20c.; packet, 10c.
Onion Seed of Selected "Yellow Globe Danvers": 1 lb., $2.25; 1-4 lb., 75c.; 1 oz., 25c.; packet, 10c. Growers: Herolds Farms, Beamsville, Ont.

YOU WANT "Reliable Seeds," get our Seed Price List and Save Money. Morgan's Supply House, London.

SPRAYING.

SAVE MONEY—Get our Spraying and Garden Supply Catalog. Morgan's Supply House, London.

BEE SUPPLIES.

BEEKEEPERS—Please write for our Catalog. Morgan's Supply House, London.

WANTED—Clover and Basswood Honey. State price. Also a lady and gentleman to assist in my apiary in Merlin from June 1st to August 15th. G. A. Deadman, Brussels, Ont.

FOR SALE.—8 Frame Hive bodies. T Supers—good condition. Will Ellis, R.R. No. 3, Niagara Falls, Ont.

MISCELLANEOUS

1,000 GUMMED HONEY LABELS, two colors, any wording, for $1.30. Catalogue free. Eastern Label Co., Clintonville, Conn.

FREE to stockmen and poultrymen, our 80-page illustrated booklet on feeding: how to construct a house which will accommodate 100 hens: gives dimensions, and measurements of every piece of lumber required. Deals with the common diseases of stock and poultry, and the remedies. Tells how to cure roup in four days. Contains full information about Royal Purple Stock and Poultry foods and remedies
THE W. A. JENKINS MFG. CO., LONDON, CAN.

Helping the Grower.

Speaking at a meeting of fruit growers in Lambton County recently, Director F. M. Clement, of the Vineland Horticultural Experimental Station, stated in conjunction with the vegetable growers' associations they had grown with fair success a quantity of beet, carrot and onion seed. Certain roots had been selected as parent stock from which to develop strains. A quantity of this seed was being tested for germination, and if found good will be distributed to members of the vegetable growers' associations for test. The tomato seed selection work was also developing favorably. Twenty-five varieties are under test. In the Niagara Peninsula fruit growers had made many mistakes. They had planted indiscriminately without thought of markets, and though they had met with success it was only through the marketing agencies that what might have proved a glut of fruit had been marketed this year.

Fruit Problems Discussed.

Prof. J. W. Crow, of the Ontario Agricultural College, said: "The apple orchard in Western Ontario is a side line and does not get uniformly good care and attention year after year. There is an excellent opening for growers who will plant a larger acreage of good varieties and stay with their orchards consistently one year after another. Many troubles arise from the fact that we do not grow enough apples, or rather that our units of production are too small. I believe there is every encouragement for the planting of orchards of from twenty to fifty or sixty acres.

"One of the most serious orchard troubles in Ontario is winter killing. This may take the form of root killing, bark splitting or of injuries similar to the sun scald. The greatest contributing cause of winter killing is late growth of trees caused by late cultivation, lack of cover crop, or perhaps by poor drainage of the soil. Apple, pear, plum and cherry trees of bearing age should not be cultivated after July 1st in any year. Peaches should not be tilled after July 15th in any case. Sow a quick-growing cover crop at the last cultivation. Oats, rye and vetch or red clover are good. This cover crop ripens the tree growth, and a cardinal aim of the fruit grower is to secure mature, well-ripened wood in order to insure winter hardiness. My own preference is for plowing orchards in the fall, but not too early. The latter part of October or beginning of November is early enough. On light land, especially if wind swept, fall plowing might be risky, but on clay land it effects a great saving of time in the spring."

BULLETINS AND REPORTS.

Bulletin 74 of the Michigan Agricultural College, East Lansing, Mich., gives the results of analyses of some materials sold as Insecticides and Fungicides.

A number of interesting bulletins and reports have reached The Canadian Horticulturist during the past few weeks. In Circular 184 entitled "The Prairie Spirit in Landscape Gardening," by Wilhelm Miller, the Illinois Agricultural Experiment Station, Urbana, Illinois, is distributing a booklet of some thirty-six pages that will prove a delight to all lovers of the beautiful in horticulture. It is one of the most profusely illustrated government booklets of the size we have seen, and the illustrations are of an exceptionally fine character.

Write for This Free Book At Once

It's Double Acting The Same Spray With Half the Labor

Double-acting feature makes spray continuous. Any variety of spray—for trees, or bushes close at hand. Actual test showed pressure of 180 lbs. per square inch without extra effort. This means power to turn and thoroughly saturate leaves with the solution.

The All-Purpose Sprayer for trees, shrubs, plants, potatoes, etc. Furnished with convenient knapsack tank if desired.

We make sprayers in 40 styles—both hand and power. *Write for FREE Spraying Guide and details of No. 5 Auto-Spray.*

E. C. Brown Co.
862 Maple St., Rochester, N.Y.

SANDER & SONS
ST. ALBANS, ENGLAND
ORCHID GROWERS. The Finest Stock in the World
Catalogue on Application

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Seventeen Years' Experience in Peach Growing

James Marshall, Hamilton, Ont.

FOR seventeen years I have been experimenting in peach culture. The farmers in this neighborhood who had attempted to raise peach trees did not have much success. The

A one-year-old St. John peach tree in bearing in the orchard of Jas. Marshall, Hamilton, Ont.

trees did not live long, and the growers became discouraged. Thus when I started there were scarcely any peach trees being planted in this section.

The first thing to consider in peach growing is to secure a suitable site for the orchard. If the trees are planted in low-lying land, where fog and heavy dew is seen in the mornings, the site is not suitable, no matter how rich the soil is. The trees may grow fast and rank, but when three or four years planted, they are likely to die. I made this mistake seventeen years ago last spring, and the only peach trees that are alive yet and bearing well are those which were planted on the higher land, having a slope towards the north. Having noticed this, I gradually kept planting trees each year on higher land, and now I have my peach orchards planted on the highest fields on the farm.

The last trees I planted were put out in the years 1912 and 1913 in the spring of each year. The rows are five sixteenths of a mile long, north and south, and one-fourth of a mile long, east and west. The trees are planted sixteen feet by twenty-two feet apart. If I were planting again I would plant them eighteen by twenty-two feet apart, as the young trees are now closing in some, where sixteen feet apart, and we require plenty of room for spraying purposes.

The site for a peach orchard should be within three or four miles from a large lake, which does not freeze over. If possible, have it on an elevation, and to the south of the lake, rather than to the north of it, as the severity of the cold is ameliorated by the northerly winds passing over the open water. In the Niagara Peninsula, we have two lakes, Ontario and Erie, one to the north and the other south. They are a little over thirty miles apart. I read in a fruit paper that peach trees should not be planted at more than an elevation of two hundred feet above the level of a lake. I beg to differ with this, as our elevation of orchard is probably nearly five hundred feet above the level of Lake Ontario, and the trees here that do the best are those on the highest hills.

Many growers say that sandy or gravelly soil is the best for a peach orchard. These soils generally afford good natural drainage, while many clay soils have a wet subsoil. If sandy or gravelly soils have a wet subsoil, peach trees will not thrive there. Underdraining two and one-half or three feet deep is not sufficient for peach trees, as the roots will strike into the moist soil, which is injurious. If any person is determined to grow peach trees where there is a wet subsoil, they might possibly do so by underdraining about seven feet deep, and placing the drains not too far apart, provided that the site is favorable in other respects. My experience has been with clay soil, fairly heavy, there being no sandy soil on the farm. Most of our trees are planted on a limestone ridge, the trees doing well with two feet of soil on rock, where there are natural drains or sink-holes. Where the soil is deep, and rather wet, we make deep underdrains, and run the water to sink-holes. We also plow up

A portion of the peach orchard of Jas. Marshall, Hamilton, Ont.

A well-loaded Triumph peach tree in the orchard of Jas. Marshall, Hamilton, Ont.

each and throw the soil towards the trees, which affords better surface drainage, as it is injurious to the trees for the water to lie around them.

I contend that peach trees thrive better where they are on an elevation, with a deep gorge, mountain face, or a large tract of land lying down much lower than the orchard, as the cold, frosty, night air runs down off the ridges and leaves the warmer air on the higher land. Any person may notice this condition when driving through a hilly country at night during most of the year.

There are about 5,500 peach trees in one of my orchards, and about 500 pear, plum and cherry trees in one corner, where the land is low, and sloping towards the south, there being a little over 6,000 trees in the orchard. All told, I have about 11,000 trees. Some early kinds of peaches, such as May Flower, Sneed Triumph, Admiral Dewey, Belle-of-Georgia, and others, bear well when planted two or three years. Early Crawfords, and those of the Crawford type, bear well when planted four or five years.

The spring frosts do little or no injury to the peach trees or fruit buds. The time when they are injured is in the winter, chiefly in February, when we have low temperatures. Ten or twelve degrees below zero does not seem to injure them, and even if it goes fifteen degrees below, we may have a good crop; but in 1914, when the temperature was twenty degrees below zero, the peach crop was a failure, and the only failure in eight years.

We allow corn, or even weeds, to grow in the orchard the latter part of the summer, in order to ripen up the trees and check the later growth. (We do not grow corn or other produce after trees begin to bear.) This hardens and prepares the trees for winter, as intense frost and dry weather in winter will injure any late or tender growth. We nearly always plow down weeds or grassy growth late in the fall and do not leave a cover crop to protect the trees, as it is only a harbor for mice. The plowing of soil prevents root freezing, as it breaks the connection between the frosty atmosphere and the subsoil, and the air spaces caused by plowing also prevent the frost from injuring the roots. I very seldom have trees winter-killed, in fact, only one year when I did not plow in the fall, and there not being much snow, the hard clay ground froze deeply.

Mice often girdle fruit trees in the winter under the snow. Some recommend tramping the snow firmly around the trees after every snowstorm, but I consider it an absurd proposition. It might do where a person has only a few trees, but if there were on an average fourteen snowstorms each winter, and if a person walked fast and tramped the snow hard after each snowstorm in an orchard such as mine, it would take fifty-six days to do the tramping, and the mice would very likely often get ahead of the tramper. It is a good way to tar-paper around the trunk of each tree, but I think it is much better to take a spade and bank the soil firmly around each tree in the fall, soon enough to let the soil settle firmly around tree. This also prevents water from standing around trees, and it can be worked down in the spring and thus cover weeds or grass.

The Production of Vegetables from Seed*

A. J. Logsdail, B.S.A., Experimental Farm, Ottawa

IN growing the seed of root crops, care should be taken to select roots that are uniform in shape, typical of the variety that they represent, and in sound mature condition. With such roots as turnip, it is advisable to twist rather than cut off the tops when storing, for by cutting off the tops too near the crown of the root, one is liable to remove the eyes from which the flower shoots grow in the spring. With beets and mangels this is not so likely to occur, as the eyes are deeply set. Such roots, after they have been selected, can be stored in either a root cellar or pit. The pit is often the more convenient, as it can be made in a corner of the root field.

In pitting roots, the pit should be so constructed as to afford a dry bottom, good drainage, and good ventilation. Successive layers of straw and soil should cover the roots. Straw drafts along the top of the pit should be made for ventilation, and such precautions as possible to keep rats and mice from making the pit their winter quarters.

Seed of certain market garden crops, such as the seed of Paris Golden Yellow Celery, is now quoted at between twenty and thirty dollars a pound. Such is only an example of the present market quotation of many of our seeds. Judging by the experimental work in our small trial lots during the past unfavorable season at Ottawa, it seems to me that there is an excellent opening for many a man with a good practical knowledge of market gardening and a realization of the essential factors in seed production to initiate and ultimately build up an exceedingly profitable business in home seed production.

Acclimatized seed produces better results, nine times out of ten, than similar seed introduced from distant countries. By the term of "seed" I refer strictly to seed, not to roots, scions or cuttings, though even in these instances there are many examples of the superiority of home-grown stock. The exception that I have in mind is that of potatoes, but a potato is nothing more or less than a root cutting.

Sweet corn is another crop that is particularly worthy of attention by Canadian growers. The majority of our sweet corn seed has been and is produced in areas to the south of us, which possess longer summer seasons than our own.

The continual importation of seed year by year excludes the possibility of ultimately acclimatizing and appreciably shortening the season of growth of these varieties. At the same time it also precludes the possibility of producing earlier maturing varieties than are generally found on the market.

Sweet corn seed has been successfully matured, improved, and selected at Ottawa for a number of years. If this

*A paper read at the last annual convention held in Toronto of the Ontario Vegetable Growers' Association.

can be done as far north as Ottawa with our comparatively short summers, similar work can be carried on throughout the province of Ontario, and if the growers would take this matter up, even in a small experimental way, the old adage, "Many hands make light work," would produce wonderful results within a few years.

Owing to the quantity of field corn grown for general horticultural purposes, the areas selected for the growing of sweet corn seed should be distant from field corn by about four to five hundred yards, as corn intercrosses very readily, owing to the fact that it produces enormous quantities of light, powdery pollen that is carried by the wind. Sweet corn that has been pollenated by field corn can be readily isolated in the ear of grain, but such segregation of seed greatly increases the cost of production and tends to introduce factors that will ultimately destroy the pure type of the variety.

Corn can be covered with light factory cotton, provided the screens are not placed too close around the plants, affording a fairly free circulation of air; but if the grade of cotton be too heavy or the enclosed corn too confined, the pollen seems to lose its vitality, and practically no seed is produced. At Ottawa, seed has been successfully secured in breeding cages made of a light grade of cotton, but in a number of instances no seed at all was secured when the grade of the cotton was a trifle too heavy.

Another crop from which a considerable quantity of seed has already been saved (but the amount might easily be doubled or trebled) is that of the tomato crop. Tomato seed is easily extracted from ripe mature fruits by passing the pulp through a quarter-inch mesh screen, thereby removing the coarse cores and skin and breaking up the texture of the pulp containing the seed. If the pulp is then stored in glass bottles until slight fermentation has set in, the seed can be cleanly separated from this pulp by washing it with a stream of water on a screen of 1-12-inch mesh. The size of this mesh is that of the ordinary netting used on fly screen doors, and is large enough to hold the seed on the top of the screen.

Problems of the Fruit Grower

Seth J. T. Bush, Morton, N.Y.

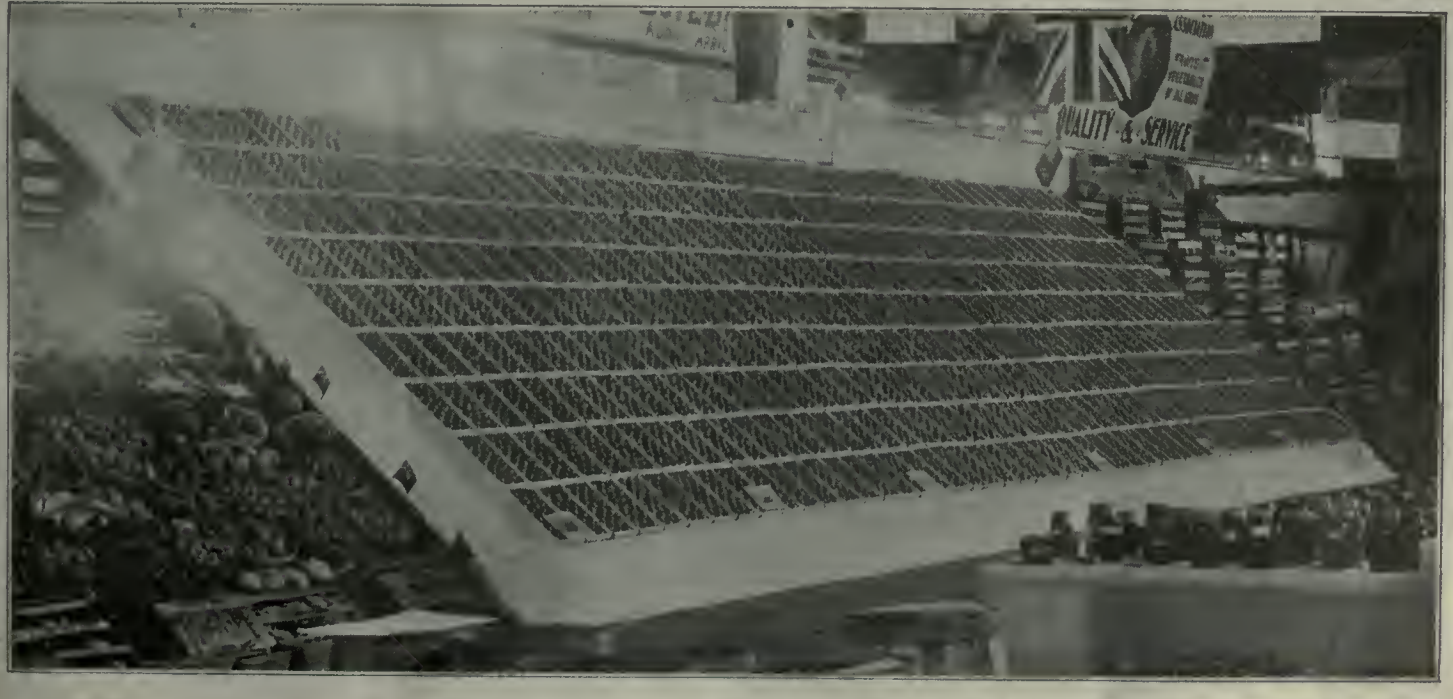
I HAVE been engaged in raising fruit commercially for thirty years, and during that time have gathered some information on the subject of more or less value, but the older I grow the more convinced I become of the fact that a man can learn something every day. Whatever success I may have attained in fruit-growing has been due largely to the fact that my orchards are located along the southern shore of Lake Ontario, where soil and climatic conditions are well-nigh perfect, and where the good old lake tempers the wintry wind to the shorn trees and stays the icy finger of Jack Frost.

*Extract from an address delivered last month at the annual convention of the Niagara District Fruit Growers' Association.

For thirty years we have been favored and protected, and during all that time we have had very few failures of a crop, and usually have received good prices for our fruit, but the past season brought to many, particularly peach growers, a rude awakening, and removed large quantities of conceit from some who had become convinced from continued prosperity that their success was wholly due to their individual wisdom.

There are many "problems" confronting the fruit-grower, but we have reached the point in our experience now where the one great problem is how to raise fruit at a profit. Heretofore it has been a question of how much profit, but the good old days are past and gone, and we are face to face with the problem of making any profit at all. Very few, if any, peach growers in the United States made any money last year, and hundreds of them would have actually been ahead of the game if they had not harvested a peach. Millions of bushels of peaches rotted on the trees in the United States last season, and the situation will be the same next fall providing there is a full crop in all sections. Our own hope as peach growers now lies in the activities of Jack Frost and disease. Three years ago I told the peach growers of New York just what would happen the first time we had a full crop in all sections, and the past season saw the prophesy fulfilled with a vengeance.

The peach business has been overdone. For the past ten or fifteen years the nurserymen have been unable to fill their orders for trees. It having been discovered that the Elberta peach would live and thrive to a greater or



An exhibit of apples made by the Thedford Fruit Growers' Association last November at the Lambton County Horticultural Exhibition.

Pruning operations in a plum orchard in the Niagara District.

less degree on almost any kind of soil, it has been planted by the million in almost every state in the United States as well as in Canada, with the result that with a full crop over the country, the markets are glutted continuously from July to November.

It is more than a question of distribution now; it is equally a question of high grade, standardized sorting and packing—of the most efficient cooperation among the growers—central packing houses economically operated—precooling and first class refrigeration and transportation—in other words, the application of the very best up-to-date business methods to our business from start to finish.

I would hesitate to advise anyone to plant peach trees. The day of big profits is past and gone. Occasionally, if from 50% to 75% of the crop happens to be destroyed throughout the sections of greatest production, we may get good prices, but it is a gamble, pure and simple, from now on, and to many of us it is but a part of life's great lesson; we prospered year after year, until we got the idea that we were pretty smart—taking to ourselves all the credit, when, as a matter of fact, our good fortune was being handed to us on a platter, so to speak, by a kind Providence.

From now on it looks like "the survival of the fittest."

The situation is going to be helped more or less by the expected decided diminution in fresh plantings, which I hope will really amount to a complete stoppage, and by the fact that many orchards are going out from age, while many others will be either badly neglected or cut down.

Thousands of peach trees were cut down in New York last fall, and I understand that the same was true in several other states, and the old expression, "the more the merrier," applies very nicely here.

It is a strange paradox that while hundreds of cars of fine peaches last season failed to return freight charges to the grower, and hundreds of thousands of half-bushel baskets of fine fruit were sold in the large markets for from 15c. to 25c. per basket, and in some cases the fruit actually got into the five and ten cent stores, some of my friends in Boston, New York and other cities were unable to secure any first-class peaches from their grocers for less than $1.00 to $1.25 a basket. When such a thing is possible in such a season as the last, there is an Ethiopian in the wood pile.

I expect to see these conditions confront the apple and sour cherry growers, as these fruits have been planted everywhere, and far more extensively than the peach.

You will probably see an apple crop produced in the United States within the next ten years, so large that it will be difficult to give the fruit away, to say nothing of selling it at prices that will permit the grower to break even on his expense of production and harvest. I am hoping that this will be within the next ten years, but it is mighty likely to occur within the next five.

Look at the apple situation. All the information obtainable last August and September indicated that the apple crop of the United States would not exceed one-half the crop of the previous year, which was a very large one, and growers and speculators acted accordingly, with the result that high prices were paid and consumption thereby checked instead of being encouraged. On December first everyone was astonished to find that there were one million more barrels of apples in cold storage in the United States than there were the year before, and that instead of our having half a crop we actually had a bumper crop as compared with former years.

This situation is explained, at least in part, by the production of the young orchards, running from a peck to a barrel to the tree, which were not given serious consideration, if they were considered at all, in making up the estimates. There are millions of these young trees, and they are going to "have a lot to say" about the volume of the crop every year from now on.

The fact that we are cut off from any export business this year has been a serious handicap, as had that outlet been open as formerly, a large volume of the supply could have been disposed of through that channel. Also, had the true state of affairs with relation to the size of the crop been known last fall the movement would have been started at a much lower price with the result that the crop would have moved rapidly into consumption at reasonable prices, and we would not now be confronted with the calamitous situation of the cold storage plants being from fifty per cent. to seventy-five per cent full of apples at this late date.

You may think that I am a pessimist, pure and simple, but I do not wish to be so regarded. I cannot conscientiously refrain from speaking the plain truth and warning innocent people who are being misled and victimized by the hundreds by attractive pictures in the newspapers and magazines portraying the easy life and overflowing purse of the average fruit-grower.

The only inference to be drawn from these glowing accounts of farm life in general, and fruit-growing in particular, is that the whole business is a "cinch"—that all that is needed is a few acres of land somewhere, sufficient money to purchase and plant the trees and patience to wait two or three years before they can begin drawing cheques. The "cheque drawing" time always comes sure enough, but to the majority it will be a long road to "big profits."

Cut out dead wood in fruit and forest trees now.

Go over the plum trees and cut out all black knot.

Some pruning may be done on warm days late this month.

Either cut off any cedar apples on trees near the orchard or cut out the trees.

Piece grafting of apples and some ornamental stock may be done late in March.

Pruning Trees to Promote Production*

M. B. Davis, B.S.A., Experimental Farm, Ottawa

A consideration of methods of pruning divides itself into three main divisions, first, the pruning and training of the young tree before it reaches bearing age; second, the pruning treatment of the bearing tree, and third, the best treatment for many of the older, thick planted, high tree orchards that are so common in many districts to-day.

It may be well, first, if we ask ourselves why we prune, for there are those who contend that pruning is an injury rather than a help. On the other hand, there are those who go to the other extreme and think that butchering their trees is the only treatment worth while.

We prune primarily to obtain better fruit and in so far as our pruning practices help along that one point, just so far is our pruning a success. We do not, or at least should not, prune to obtain a beautiful or sightly tree. A tree possessing beauty alone does not add dollars to our pockets, so that look at it as you may we prune only to obtain better fruit. If left alone, with plenty of room in which to grow, a tree will, all other things being favorable, produce an abundant quantity of fruit, for nature will see to it that her pruning is sufficient to keep the tree in excellent bearing condition, but what of the quality? The quality will invariably be of a low grade, for nature, when it produced the apple did not have man in mind, but merely produced the fruit as a means of enclosing the seeds in an attractive little parcel which would nurture and protect them until carried and scattered over the face of the earth by some fruit loving animal. Thus we come to the ultimate conclusion that we prune only to obtain better fruit from our trees.

There is no operation in the orchard which requires greater care or greater thought and study; there is no operation which in the long run has as much to do with orchard profits as pruning. I sometimes think that we fruit growers have gone clean mad over spraying and some other operations and in our madness have forgotten the first and fundamental road to success, proper pruning.

The different types of trees that we may grow may be roughly divided into three classes. One is the pyramidal form, another is the open centres, and the one that I recommend for Nova Scotia conditions is a combination of the two. The first or pyramidal form, which consists of a central leader, with branches radiating off from it, gives too large and too high a tree for your conditions. It shuts out too much sunlight, thus making the production of clean, well colored fruit a more difficult task than it should be. Now there is probably no fruit section under the sun where all the available sunlight possible is needed more than in the two fruit growing valleys of Nova Scotia; furthermore, there are few sections where insect pests, and fungous diseases naturally thrive any better than in your climate, so that the first factor in directing the shape of the tree is sanitation, and the central leader type cannot be called a sanitary type of tree. The open centre tree, while possessing admirable sanitary qualities, does not possess the strength of the central leader type, so that a combination of the two is more desirable.

This shows a centre leader type of tree.

The combination type consists in allowing the central leader to grow for the first year until five or six good branches arranged in a whorl and well spaced can be selected to form the framework of the tree.

By well spacing these scaffold limbs the tree is stronger than if all the limbs should arise from a small area where they would each be pulling against the other and would break down under heavy winds or heavy loads of fruit. The central leader is not allowed to grow to any great height, so that you have a type with the combined advantages of the pyramidal form and the open centre and with their objections eliminated.

Having decided on the form our tree shall take we are now ready to follow the pruning, year by year. The first year, or the year the tree is set out, it will be necessary to head back all branches in order to give the roots an opportunity to get a hold and to make our trees stocky instead of long and willowy. In recent experiments conducted by the Station at Kentville, trees cut back when planted made a growth of 4.82 inches the first year and twenty inches the second, while trees not headed at all made a growth of one inch the first year and only 2.4 inches the second year.

*Extract from a paper read at the recent annual convention of the Nova Scotia Fruit Growers' Association.

This Northern Spy tree was dehorned two years before this photograph was secured. Note how the cuts were made and the new growth and suckers forming on barren arms.

Wealthy apple trees not pruned at planting time. This is a good way to get trees with long barren arms.

During the first two years of a tree's growth prune for wood. This adds to the importance of this first cutting back. To enable us to form a good, strong, well-balanced head we must have abundant wood growth and pruning during the first four or five years should be directed towards that end. After that age our pruning practices are radically changed.

In heading back, head back the strongest branches the most and the weakest the least, in order to give a correct balance to the tree. This may be contrary to the popular opinion, but that is because popular opinion has confused the results of heading back a tree as a whole with the results from heading back separate branches.

This will probably be about all the pruning required the first year, although the tree should be looked at during the latter part of June, and if any branch is growing at the expense of the rest, it should be nipped back, bearing in mind the one aim, to get a stocky and well-balanced growth to select from. The first real pruning to our newly-planted orchard comes in the second spring.

As the tree is to be the modified leader type, it is pruned so that the central branch will maintain the lead, and five other branches at most will be selected, as previously stated. All other branches are removed and the five selected branches are cut back a considerable distance, cutting the weaker ones the least. As these main branches will probably have some laterals on them, it is advisable to remove these at this time.

This second year much can generally be gained by adopting a system of summer pruning and continuing both summer and spring pruning for a number of years. By spreading the pruning over two periods like this, the shock to the tree is at no time excessively great, so that it is more easy to maintain a correct balance. Furthermore, a whole season can often be gained by summer pruning. Early in summer the branches cut back in the spring will have put forward considerable growth. As soon as this growth has reached a stage where laterals can be spaced on it, pinch back the branches and you will thus gain a season.

It is a common practice to let the terminal growths grow until the following spring, when it is found necessary to remove, say, a foot or more of new wood. This means a waste of energy, for you could have cut back to that same point in summer and would probably only have had to cut off six inches or so of new wood. The idea is to economize in the energy of the tree and relegate as little of it as possible to the brush pile, thus conserving it for use by the tree itself and incidentally gaining a season in your pruning. By the following spring each of the branches pinched back in summer will probably have a number of laterals attached to them. All these laterals but one for each main branch are removed,

Wealthy apple trees cut back at planting time. This induces laterals and a stocky growth.

thus leaving twice as many branches as there were the previous spring. Select, of course, the best spaced and strongest branches in every case.

In selecting these laterals make sure that the lateral is not cut the same length as the main branch, or the result will be weakened crotches, for if lateral and main branch both bear equal quantities of fruit one will be pulling against the other. On the other hand, if one is large and stronger the weaker will have to yield to its pull and no strain at all be placed on the crotch.

We now arrive at the summer of the third year after planting, and as the trees are well established and in good condition, a considerable amount of new wood should be put forth. This new growth is again cut back, the same as the previous year and new laterals thus forced out. In this way another season is gained by summer pruning practices and we arrive at the fourth spring after planting with a strong, stocky tree containing well spaced and well balanced lateral branches. This spring it will only be necessary to clip back too long or rangy laterals and thin out the undesirable and cross branches from the trees.

During the summer little pruning should be done, but attention must be paid to too strong growing branches and laterals, suppressing the strong to give the weaker an opportunity to develop. This practice of milder cutting back and thinning out both spring and summer is followed until the tree reaches the age where it should come into bearing. This age varies, of course, with the variety and the locality. Our idea up to the present has been to prune for wood growth, now our procedure changes and we prune for fruit. The mistake is often made by growers of continuing the same practices during the bearing age, as they did during the frame forming period, thinking that the methods which have given them such fine and shapely trees should certainly give them fruit, but such is not the case.

A variety like Duchess or Wagener can stand more cutting back at this stage than a variety like Gravenstein or King; the former being weak growers, tend to heavy and early fruiting, and the latter being vigorous growers tend more to wood production. Generally speaking, however, the spring pruning should merely consist of removing cross branches, needless branches and cutting back long, barren, terminal growths, where laterals are needed, but no regular system of unrestricted heading back should be adopted. This should be supplemented by summer pruning to induce fruitfulness, especially in the varieties which are shy bearers and which take a long time to come into bearing.

Spraying Suggestions

Don't think a week earlier or later than the date recommended is just as good.

Don't think that spraying alone will insure good fruit; pruning and cultivation are equally important.

Don't apply Bordeaux mixture in wet weather, for it is liable to russet the fruit.

Don't overspray. An even coating should be left on the fruit and foliage; any material which runs off does no good.

Don't expect results if the work is not thoroughly done.

Don't apply lime-sulphur and arsenate of lead in a spell of extremely hot bright weather, for it is liable to cause serious burning.

Don't try to get along with a machine which is worn out or too small to do good work; if the work is worth doing, it is worth doing well.

Planning the Home Lot

F. E. Buck, B.S.A., Central Experimental Farm, Ottawa

At some time or another every person thinks of the possibility of owning a home. Many people, moreover, actually plan and build their own houses. A real home consists of the house and its surroundings. It soon becomes evident that if it is without external attractions it loses much of that charm which makes so many homes of the older countries so dear to memory. The modern house is often a great improvement on older types, both from the standpoint of architecture and convenience, but it frequently lacks in charm and simple artistic beauty because its surroundings are poor.

To miss making a house and lot into a "home" is to miss a chance to increase the cash value of the property. The pleasures obtainable only from a delightful home are also missed. Homes attractive, pleasing, convenient, profitable and "homelike" are twentieth century homes.

When to Start.

Real home making may be commenced at any period of the year. The winter, for instance, affords a fine opportunity to make simple plans and outline a policy for the coming season. A simple plan on paper, drawn to scale, is not essential, but it will help. It holds one to the practicable and saves subsequent disappointment and mistakes.

Minimum Requirements.

The minimum requirements of simple yet attractive homes are, in most cases, three or four in number, for instance:

1. In most cases, a good lawn.
2. Some simple shrubs and flowers.
3. Two or three trees.
4. An area for vegetables.

Many other features might be suggested, but everything will depend on the situation, location and size of the lot. The accompanying plan is one suggested for a home where the owner's time is limited. Its planting arrangement will involve the very minimum amount of labor and expense in its upkeep.

How to Proceed.

The first consideration in most cases is a good lawn. Around every house a good lawn is like a good carpet in a room. It should be well made and well kept. It should not be cut into by walks more than possible, and flowers are more easily tended and will produce far better effects when placed in borders at its boundaries rather than in prominent beds in central places where they rob the lawn of much of its charm. A lawn broken up by flower beds generally looks smaller than it actually is. In exceptional cases a flower bed on the lawn is helpful and artistically pleasing. Information on making and caring for the lawn may be obtained on application from the Central Experimental Farm, Ottawa.

The second consideration is that of the permanent features on the lawn, such as shrubs and trees. Flowering shrubs cannot be too highly recommended. They are useful around all types of houses and public buildings. Their beauty is unquestioned, and they are the true furnishings of the "out-of-doors living room." They are most useful and effectively placed when planted in groups of three or four, close to the house, as shown on the plan. In such positions they help to make the house and grounds a harmonious whole. Other good positions for shrubs are by boundary fences and in the corners of the lot. As single specimens such shrubs as the hydrangea, the smoke tree and others of similar habits always look well planted in some permanent but suitable position in the foreground of the lawn area.

Flowers.

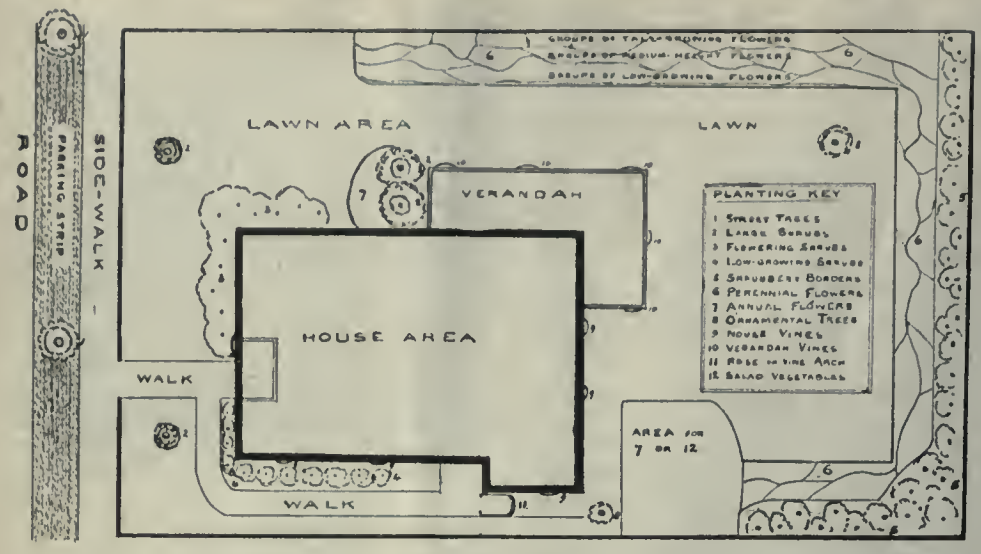
The two large classes of flowers known in gardening terms as annuals and herbaceous perennials will give bloom, when selected with this end in view, for six months of the year. For flower borders down the side of the house, or at the boundaries of the lot close to a hedge or fence, the perennial flowers will be found more satisfactory. The heights and habits of such plants must be known in order to arrange them successfully, and information on this point may be obtained from the Central Farm at Ottawa.

The "annuals," however, contain so many of the very best flowers that some of these flowers should be grown also. Every garden should have in it some of the old favorites like sweet peas, china asters, mignonette, nasturtiums, and others. Often a part of the lot at the rear of the house may be given up for such flowers. They are splendid for cutting for table decorations. A small vegetable garden, when there is room for it, will add much to the interesting features of the lot.

Shade and Ornamental Trees.

A lot which is large enough to accommodate a good shade tree or two is most desirable. Generally, however, it is wiser not to attempt to plant large shade trees on the average size city lot. The smaller size ornamental trees like the Mountain Ash, Flowering Crab Apples, Siberian Pea Tree, or some suitable evergreen tree are more suitable, and will generally provide enough shade. Shade trees as street trees are most desirable, but the roots of such trees, where planted on the lot itself, rob other plants of too much food and

An effective bed of light blue Iris in the garden of Mr. Lynch Staunton, Hamilton, Ont.



A SIMPLE PLANTING SCHEME FOR A TOWN LOT OF MEDIUM SIZE

moisture. It is difficult to get plants to do well near trees for this reason.

Starting the Garden from Seed.

Some of the best gardens are those which cost the least. Raising the plants from seed is a cheap method of beautifying the lot. In order to germinate properly, seeds must be sown in fine friable and fairly moist soil. Shade must be provided for the first two or three weeks. It is a good plan to start seeds in flats or pots, in the house or a hot-bed. Seed should be covered about three or four times the depth of its diameter. That is, fine seed is just covered with fine soil, while larger seed is sown from one-eighth to one-half inch deep, according to the size. The soil must not be allowed to dry out, and water must be applied with care and caution. Several slightly different methods will bring equal success, as there is no trick in successfully growing most flowers from seed. After the seedlings are several inches high they should be transplanted.

Some flowers may be raised successfully by sowing the seed out doors, as sweet peas are sown. Transplanting is not necessary in such cases. At the time of transplanting the seedlings it is well to remember that you will have greater success if the work is done in the evening or on a dull day. After they are pricked out, water well. This prevents wilting, and hastens growth. About the middle of April is a good time to start seed indoors. For outside sowing, sow as soon as the ground is dry enough, or about the first and second weeks of May will give good results.

Beautiful Shrubs.

For early spring bloom—Snow Garland (Spiraea arguta), Sweet Scented Currant, (Ribes aureum) Lilacs.

For spring and summer—Van Houtte's Spiraea, Mock Orange, (Philadelphus) Honeysuckles.

For late summer and autumn effects—Japanese Rose, (Rosa rugosa) Hydrangea paniculata, Japanese Barberry.

Evergreen Shrubs—Japanese Cypress, (Retinospora), Japanese Yew, Junipers.

Ornamental Trees.

Small trees—Siberian Pea Tree, Mountain Ash, Flowering Crab Apple.

Large trees—Weeping Cutleaved Silver Maple, Purple Leaved Norway Maple, Lindens (Basswoods).

Evergreens — White or Norway Spruce, Rocky Mountain Blue Spruce, Pines.

Small evergreen trees—Siberian Arborvitae, Pyramidal Arbor-Vitae, Dwarf Pines.

Perennial Flowers.

Bulbs for spring effects—Crocus, Narcissus, Tulips.

Flowers for early spring—Columbines, bleeding-heart, Oriental Poppy.

Flowers for spring—Iris, Paeonies, Day Lilies.

Flowers for early summer—Pinks, Foxgloves, Delphiniums, Hollyhocks.

Flowers for summer—Coreopsis, Blanket Flower, Shasta Daisy, Lilies.

Flowers for late summer—Phloxes, Rose Mallows, Sunflowers.

Flowers for autumn—Japanese Anemones, Perennial Asters, Heleniums.

Vines for House and Porch.

For the house—Self-fastening Virginian Creeper.

For porch or verandah—Bitter Sweet Vine, Dutchman's Pipe Vine.

For trellis work or fence—Native or Japanese Clematis.

Annual Vines.

Cup and Saucer Vine, Canary Bird Vine, Eccremocarpus, also Sweet Peas, Nasturtiums and Morning Glories.

Annual Flowers.

Low growing—Pansy, Verbena, Drummond Phlox.

Medium height—Snap-Dragons, Ten-Week Stocks, China Asters.

Medium height also, if room, Petunias, Zinnias, Pin Cushion Flower.

Tall varieties—Cosmos, Salpiglossis, Everlasting Flowers.

Roses.

Six useful garden varieties—Frau Karl Druschki, (white), Madame Ravary, (yellow), Mrs. John Laing, (pink), Ulrich Brunner, (cherry red), Hugh Dickson, (brilliant crimson), Etoile de France, (velvety crimson).

Pruning Shrubs

H. E. Thatcher

The pruning of hardy shrubs is one of the most important matters connected with them, but it is very imperfectly understood. We see far too often the lamentable results accruing from a lack of knowledge of their individual requirements. All that is generally considered necessary is for an incompetent workman to give the shrubs an annual trimming with a pair of shears, with the result that when the work is finished the shrubs all have about the same rounded, stiff appearance; much of the old growth, which should have been removed, is left and forms a mass of useless growth; and the young wood, which should be carefully preserved for future blossom, is cut away.

It is not possible to lay down any hard and fast rule, as shrubs differ so much in their individual requirements, but it is better not to prune at all than to prune indiscriminately. The large majority of flowering shrubs produce their blossoms during the spring and summer months, and some of these, such as the Philadelphus, Deutzias and Forsythias, which produce their flowers on wood of the previous season's growth, are improved by having some of the flowering stems cut clear out as soon as the blossoms have fallen. This will help to strengthen the new growths sent out from the base and give them a better opportunity of becoming well ripened before winter sets in.

The majority of hardy shrubs require very little pruning beyond occasionally removing the old growth so as to keep them shapely and open to enable them to receive the full benefit of the sun and air. It is only by intelligent study and actual practice that one can become conversant with the requirements of different shrubs.

The sections that are enabled to enjoy bird life the most are those that contain thickets of shrubs and trees. Birds nest and live in these and pay their rent by catching injurious insects and furnishing music. Many birds have brilliant plumage, which adds color and beauty to the thicket in which they live.

The Development and Propagation of the Lilac*

John Dunbar, Rochester, N.Y.

THE lilac, Syringa vulgaris, is the queen of hardy garden shrubs. No other garden shrub approaches it in popularity. The showy, prominent, fragrant flower clusters which are always borne abundantly, its

The lilac Dr. Masters. Mr. Dunbar is shown.

adaptability to diverse soils provided they are well drained, and its absolute hardihood, combine to make it a favorite. It appears to flower more abundantly in the gardens and parks of the north and north-eastern United States and Canada than it does in Europe. The result of this is seen in the remarkable popularity the lilac has attained, judging by the multitudes of people that go to see different public collections of lilacs in flower.

The home of the common lilac is supposed to be on the mountains of south-east Europe and along the rocky banks of the Danube. About ten years since it was found growing on the higher mountains of Bulgaria. It had the appearance there of being in native conditions. Seedlings raised from seed collected from these plants on the Bulgarian mountains show primitive conditions in flower. That is in the small individual flowers, and small clusters, there are all the appearances of a wild type.

It is said to have been introduced into the gardens of Great Britain about 1597. Loudon is his Arboretum et Fruticetum Brittannicum, published in 1842, gives descriptions of seven varieties, and states, "A number of plants have been raised from seed by Mr. Williams, of Pitmaston, of which there are six sorts tolerably distinct in the Horticultural Society's garden. The French nurserymen are also in possession of new seedlings, but none of them that we have seen are so well deserving of culture as the common blue, violet, red, and the white." This, then, was about the status of the lilac in Europe about seventy years since. During the previous nearly two hundred and fifty years of its cultivation in British gardens, nothing particularly noticeable in the improvement of the lilac, at least so far as any records show, seems to have been accomplished.

Different Species.

There are about twenty-five species of lilacs known to science. A number of new species were discovered during the past fourteen years in western China by the Chinese botanist and explorer, E. H. Wilson. The range of all of the species of the genus is from south and south-eastern Europe through central Asia and the Himalayas to Mongolia, northern and western China, and Japan. It may appear remarkable that no species of lilac has ever been found native on this continent.

Some of the species are remarkably handsome garden plants, and all of them are worthy of cultivation. Syringa Amurensis, from Manchuria, has large white fragrant loose clusters of showy flowers about the middle of June. It has very slender branches, and grows eight to ten feet high. Syringa chinensis was supposed at one time to be a species, but it is now known to be a hybrid between the common and Persian lilacs, and originated at Rouen, France, many years since, and is sometimes known as the Rouen Lilac. It has large, lax, flower clusters, and varies from deep lilac, reddish lilac to white. Syringa Giraldi comes from northern China, and has pale lavender flowers in long clusters, at the end of April, and the first of May. It grows six to eight feet tall.

Syringa Persia, Persian Lilac, comes from Persia and Afghanistan, and is a most dainty, beautiful shrub, with flowers lilac and white. Syringa pubescens comes from northern China, and has loose clusters of pale rose-colored, fragrant flowers, at the end of May. This is a most beautiful shrub, and grows six to eight feet high. Syringa reflexa is one of the new lilacs from western China, and flowered with us last spring for the first time. It has curving panicles of rosy red flowers, and is most distinct and pretty. Syringa Sweginzowii is a new lilac from some part of eastern Asia, with dainty clusters of white flowers shading to pink, and flowered with us for the first time last spring.

Syringa villosa is a lilac from northern China, and grows wild in the neighborhood of Pekin. It is one of the

A close view of the lilacs Leon Gambetta and the Doctor Masters.

*Extract from a paper read at the last annual convention of the Ontario Horticultural Association.

The perennial border in the garden of Mr. A. W. Palmer, Hamilton, is a source of much pleasure. On the right may be seen lillum auratum. At the rear of the fence border is rose color phlox. Note the bird house.

handsomest of the species and produces ereet, showy clusters of pale, rose-colored flowers during the first week in June. The foliage is beautiful and characteristic. Syringa japonica is from Japan, and approaches more nearly to the size of a tree than any other lilac. It has enormous white flower clusters about the end of June, and is the latest of all lilacs to flower. Syringa oblata comes from northern China, and is about the earliest of the lilacs to bloom, and is sometimes in flower about April 26th. It is the only one that has handsomely colored foliage in the fall, and turns to a deep scarlet red. Syringa Wolfii is another new lilac from western China, and flowered with us for the first time last spring, and is of a deep shade of lilac, with flowers produced in great profusion.

All of the species of lilacs can be easily raised from seed, which should be sowed as soon as ripe. Varieties can be budded, grafted, raised from green cuttings, layers, or suckers (provided the suckers are taken from varieties that are upon their own roots). It is always preferable to have varieties upon their own roots, but they are usually hard to obtain. Green cuttings should be taken as soon as the wood has made its full growth, about the first or second week in June, and placed in four to five inches of sharp sand in a hot-bed in which sufficient stable manure has been packed to create good bottom heat. The sashes should be kept closed for several weeks and shaded from sunshine at all times of the day by cotton-cloth three feet away from the glass. The cuttings should never be allowed to become dry. They should be well rooted by August or September, and they can either be potted and kept in a cool green-house or planted in a frame and protected throughout the first winter.

The next best method of propagation is to wedge graft on the roots of the California Privet, using two-year-old privet stock, the roots need not be more than three inches long. This should be done about the first of February. The grafts should be placed in "flats" about four inches deep, deep enough for the unions to be covered with soil. If the flats are placed on a green-house bench with bottom heat and a moderate temperature overhead not to exceed fifty-five degrees, they will soon unite and root. They can be planted out in the nursery about the middle of May. If this stock is planted sufficiently deep it invariably gets on its own roots and the privet ultimately disappears and dies.

Budding on to the California Privet is practised in many nurseries. They grow with tremendous vigor for a few years, but according to our observations they are short lived. Budding on to the common lilac stock is often resorted to, but in this case there has to be a constant repressing of suckers, and if ordinary vigilance is neglected the graft will soon be overpowered. Layering is an easy method, but requires patience. This should be done in spring and it takes about two years before the layer is fit to be disturbed.

A selection of the most distinct varieties of lilacs, including some of the newer ones and some older standard kinds would be as follows: Single flowered, in shades of purple-red, violet-red, and carmine-red; Danton, Cavour, Pasteur, Milton, Reaumur, Negro, Congo, Toussaint l' Overture, and Uncle Tom. Single flowered, in shades of blue to bluish mauve; Beautre, Gilbert, Crampel, coerulea superba, and Colmariensis. Single flowered, in shade of bright lilac pink; macrostachia, lilarosa, amoena, Schermerhornii, and Lovaniensis. Single flowered white; Vestale, Madame Florent Stepman, Virginalia, Kate Harlin, Princess Alexandra, Marie LeGraye, and Frau Bertha Damman. Double flowered, in shades of purple-red, violet-red, and carmine-red; Charles Joly, Paul Hariot, Stadtgartner Rothpletz, De Saussure, La tour d' Auvergne, and Marechal de Bassompiere.

Double flowered in shades of blue to bluish-mauve; Marc Micheli, Maurice de Vilmorin, President Viger, Condoreet, Godroy, Viviand Morel, Abel Carriere, Olivier de Serres, and Victor Lemoine. Double flowered in shades of light pink; Louis Henry, Edouard Andre, Comte de Kerchove, Waldeck Rossean, and Madame Jules Finger. Double flowered white; Madame Lemoine, Miss Ellen Willmott, Jeane d'Arc, Dame Blanche, Obelisque, Madame de Miller, and Madame Casimir Perier.

Ginseng Growing

Wm. Gilgour, Peterboro, Ont.

There are two varieties of ginseng, Canadian and American. In the autumn of 1903 I received several hundred ginseng roots, purchased from a grower in Joplin, Missouri, U.S.A. Two hundred of the roots were three years old. They came up the following spring and made a thrifty growth all summer, but not one of the seeds ripened. They grew on late into October, when the first heavy frost cut them down. These roots were accustomed to a longer growing season in their native climate, hence their failure to ripen, except in favorable seasons, when planted in the north. I saw by the latter part of September that I would have no ripe seeds from those plants. I heard of a man who had a small plot of ginseng in the backwoods so I drove thirty miles north of the city to his place and bought one thousand roots—all the one, two, and three year old plants he had. The following summer, the three-year-old plants of this lot produced a fine crop of seed. They were all ripe and harvested by the middle of September. The native root has this advantage over the southern. We have a full crop of ripe seeds, and we can dig the roots for market early in September and dry them in the sun.

Look for scale and mealy bug on ferns and other house plants. To rid the plants of the insects wash with soap and water, using a soft sponge or brush, then cleanse with clear water. Rain water is better than well water, since it does not contain alkali, which often leaves white streaks on the leaves.

Starting Seeds in the Hot Bed

Henry Gibson

ONE of the greatest difficulties or rather drawbacks that the Canadian gardener has to contend with is the shortness of the outdoor gardening season. Severe frosts in late spring and early fall make the actual growing season a brief one at the most, but by making use of a hotbed one can have vegetables and flowers anywhere from two weeks to two months ahead of those who wait until the ground is warm enough before planting the seed. Moreover, a hot-bed furnishes an outlet for one's pent-up energies after a winter of more or less inactivity. Kipling says:

"The cure for this ill is not to sit still,
And frowst with a book by the fire,
But to take a large hoe, and a shovel, also,
And dig till you gently perspire."

Hotbeds may be either above or below ground, but for early growing, and more especially for a climate like that of Canada, we prefer those below ground. A pit about four feet deep, with concrete sides and bottom, and provided with bottom drains and provisions for sash constitutes an ideal place for a hot-bed. The length, of course, depends on the quantity of produce to be raised. Regulation sash are six feet by three feet.

If you have not a structure of this kind the cold frame can be made into a pit by digging out the soil to a depth of two feet or more. By making up a layer of manure a foot or more larger than the area of the frame to be used and eighteen inches deep, one can have a very satisfactory hot-bed above ground which will generate enough heat to resist any cold spell that is generally experienced in March.

Material for making up the hot-bed is generally easy to get. Dry leaves and horse stable manure in equal parts is all that is needed. By adding the leaves the heat is not so intense, and lasts much longer. The material should be turned every three or four days to prevent too rapid fermentation, and to thoroughly mix. After several turnings and the excess of ammonia has escaped, it is ready to put in the frame. For a frame or pit fifteen by six feet use three one-horse loads of this material to make the bed two feet thick. Tramp it well down so as to keep in the heat for the longest possible time. Usually after placing the manure in the frames it will become quite hot, and a thermometer should be put in to indicate the degree of heat. Not infrequently a temperature of over one hundred degrees will be registered, but not till this has settled to ninety or less, and gives indications of remaining at a steadily agreeable point should the soil be put on. The soil should be of a light sandy nature, made up of two parts good garden soil, one part leaf-mold with enough sand to make it porous. A layer five or six inches thick is enough for the raising of either seeds or rooting cuttings.

Lettuce is one of the most looked for early vegetables from the garden, and by sowing seed in such a hot-bed as we have described, transplanting the seedlings when large enough to handle into a cold frame, heads may be had ready for cutting by the latter part of May.

In order to make the most of the space radish may be sown between the rows of lettuce. It will be used before the lettuce becomes too large to need the room.

Carrots respond readily to hot-bed culture, and if sown thinly in drills six inches apart and no thinning done until they are fit to use, quite a supply can be had from very few rows. Early Short Horn and Paris Forcing are the best that we have tried. Beet tops are a good substitute for spinach in early spring, and by sowing seed early in March one may expect to have the tops fit for use in six weeks. Sow as suggested for carrots, and if the tops are not used you will have young beets for the table in May, several weeks before you could have them from the open ground. Onion sets may be planted for an early supply of salads, or seed may be sown and the seedlings used as soon as they are large enough.

Vegetables can be started for transplanting to the open garden as soon as weather conditions permit. Among these the chief are cabbage, cauliflower, onions, leeks, tomatoes, egg-plant, peppers and celery. Tomatoes, egg-plant and peppers are more tender than the others named, and should be carefully protected from cold drafts, and hardened well to outside conditions before being set out in the open. In fact, all seedlings raised in a hot-bed or greenhouse require to be well hardened off before planting out, but the three mentioned are more tender than the others and more care should be taken with them.

Asters, stocks, antirrhinums, petunias, verbenas, and almost every conceivable form of garden flowers that grow from seed can be successfully raised in the hot-bed. Those wanted for later use can be as well sown outdoors when the soil is warm enough, but for early cutting sow in the hot-bed and transplant to a cold frame to harden off before planting to the open ground.

There may be among beginners a little confusion as to what is the difference between the terms "cold frames" and "hot-beds." Cold frames are warmed by the sun only, and are capable of resisting but little frost. They are used chiefly for gradually hardening the plants to outside conditions.

A commodious lawn with a well arranged perennial border to enhance its attractiveness.

The Aster (Michelmas Daisy) Novaae Anglae Rosens.

Hot-beds, as will have been gathered from the description of one in the making, are warmed by a bed of manure giving heat by fermentation. Both are a sort of small green-house with almost unlimited possibilities. Don't get the idea that they are to be used only for securing a supply of early flowers and vegetables. You may also have a late supply in the fall, and during the summer months they may be used for growing perennials from seed. Cuttings of most kinds of bedding plants are readily rooted by the aid of the "little green-houses."

Ventilation is a phase of hot-bed and cold frame culture that should receive careful attention. Too much of it will chill your plants, and too little will make them soft. This is especially so when they have been transferred from the hot-bed to the cold frame to harden off.

In cold weather raise the sash slightly on the side away from the wind at mid-day when the sun is hot. In warmer weather the sash can be slid down or elevated to admit plenty of air. During very cold weather some covering should be put upon the glass. Straw or burlap mats are very convenient for this purpose. When hardening off plants do it by degrees, so that when the time comes to plant out, the plants are getting the maximum amount of air in the frame.

Those who are unfortunate enough not to have a hot-bed may have early plants to set out by starting the seeds in the living room or the kitchen. To do this you will require some boxes, "flats," they are called by the florist, in which to sow the seed. Twelve by twenty-four inches is a convenient size, but for home use haddock boxes that can be readily obtained from the grocer are just the thing. These should have a layer of moss or coarse leafmold, put in the bottom to provide drainage, and be filled to within an inch of the top with the same kind of soil that was recommended for the hot-bed, then thoroughly watered. When the surplus water has drained away the seed can be sown. Sow thinly and as evenly as possible and cover the seed but slightly. The directions on the package are a good guide in this. Many failures of seed to grow can be traced to its being covered too deeply. Cover with a sheet of glass, shade with newspaper and stand the box in a warm place. Heat may be furnished by elevating the boxes on bricks over the radiator or on the kitchen range. A sunny window in a warm room may be brought into use. In short, each individual house will have its own little corners where the boxes may be placed. Care must be taken not to allow the soil to get dry or the seed will not grow. Look over them at frequent intervals, and if any show signs of needing water, place them in the sink where the water can soak up through the bottom of the box and through the soil by what is known as capillary attraction.

When the seed germinates give them the lightest position in the house, and when large enough to handle, transplant to other boxes, planting the seedlings two inches apart. Where a number of varieties of seeds are grown in this way, and transplanted, they occupy a good deal of room, and a cold frame should be provided for them, the same as for the hot-bed plants.

Informal Planting of Home Grounds*

Miss Mary Yates, Port Credit

No garden is at its best unless it has a beautiful lawn. To dot it over with flower beds, be they never so gay, or with trees be they never so stately, is to leave it no longer a lawn, but a flower garden or a shrubbery. When lawn, flower beds and trees are wanted, let the lawn proper be made smaller and detached portions of it be given up to the flower beds and trees, or let them be placed upon its margin. This will be to the advantage of the flower beds, trees and lawn.

The easiest way to spoil a good lawn is to put a flower bed in it. It should be free and generous. The more it is cut up and worried with trivial effects, the smaller and meaner it looks. Flowers, too, need a background, and border planting sets bounds to a place and makes it one's own. The places for flowers are along borders, against groups, by the corners of the residence, in front of the porches, using their colors, as an artist does his paints and palette, to give life and finish to the whole.

Wood Lot.

The pleasure grounds and general landscape should have some definite connection with the wood lot. This may be had by masses of flowering shrubs, a thicket of free-growing roses, a plantation of hydrangeas, or the lawn can slope up gently by grass paths to a rock garden with dwarf shrubs and alpines.

Have a Plan.

It is most desirable to have a definite plan on paper and draw to a scale, giving the location of the leading features, such as the house, wood lot, outbuildings, service areas (clothes yard, soils, manures, nursery bed, frames, etc.), vegetable garden, drives, walks, lawn, to serve as a general guide for meditation, rearrangement and development of future plans. Make this plan with a key having numbers to correspond with the list of plants used.

The View.

An important feature, not included in the plan, is the vista or view obtainable from the grounds. From our own drive a neighbor's orchard makes a glory, whether in bloom, in fruit, or when the bare branches form a delicate tracery against the sky. To take the best advantage of this, it was necessary to make a special type of fence.

A garden overlooking a magnificent view of the Georgian Bay has used such restraint in the planting that the eye is never violently dragged back to trivialities in the foreground, but appears to be conducted quietly to the scene beyond. Andrew White's garden on the hillside was planted to be an inspiration to students passing to the Agricultural College at Cornell University.

To bring the planting into line with these schemes, some consideration as to methods is necessary. A few years ago Mr. F. E. Buck, of the Central Experimental Farm, Ottawa, gave an admirable plan for grouping the four flower periods. This has formed the basis of my own informal plantings, and cannot be too strongly recommended as a working scheme by which to plan pictures for large or small gardens.

In May we have Dutch bulbs, such as tulips and narcissus, and shrubs and alpines and such other flowers as prim-

* Continued from February Issue.

roses, forget-me-not, dwarf iris, bleeding heart, rockets, anchusa and polemonium.

In June and July there are the ardent flowers, such as paeonies, irises, columbines, Canterbury bells, and such wood flowers as trilliums, spring anemones, lily of the valley and Solomon's seal.

In July and August we find the showy flowers, such as perennial phlox, bocconia, delphiniums, platycodon, campanulas, eryngium, lobelia syphiliticae, echinops Ritro.

In September and October we enter upon the prevailing flowers, such as dahlias for display, perennial sunflowers or helianthus, heleniums, pyrethrum uliginosum, and others similar.

Other varieties to give life and finish are campanulas, pyrethrums, gypsophila, thalictrum, fox-gloves, pinks and oriental poppies.

Annuals may also be used to fill in. Roses should be planted in a bed by themselves.

New Plants and Flowers

A NUMBER of hardy chrysanthemums have been under test for several years in the garden at the Guelph Agricultural College, and have

The White Queen Aster.

given very good flowering results, especially last season. The greatest obstacle to success with them is on account of the attacks made on them in June and July by the small tarnished plant bug (lygus pretensis). This pest punctures and destroys the terminal point of growth of the plant, destroying the buds when they are in an embryo condition, causing the growth to produce blind or flowerless growth. The best partial remedy for these pests is to dust the terminal points of growth every few days in hot weather with pyrethrum powder, wood ashes or soft coal soot. Asters and dahlias are also badly injured in the same way by this pest. A sure remedy for the attacks of this insect is badly needed by flower growers.

The following is a list of ten good varieties for planting in the garden. Early spring is the best time to plant.

Carrie (also sold as "Glory of Seven Oaks"), golden yellow; Hermine (Pompon), white; Cactus, bronzy red; Champagne, ruby red; Champ d'Or, golden yellow; La Pactole, bronzy gold; La Somme, mauve pink; Eden, rose red; October Gold, old gold; Queen of Earlies, pure white.

Plants of these hardy varieties gave good flowering results last season from August to the second week in November. There should be more of them seen in our perennial borders, brightening up as they do their whole surroundings at a time of the year when the garden usually looks forlorn and desolate.

Spring Flowering Bulbs.

An interesting test was started at the college last fall with early flowering tulips and the Darwin type of tulip. A consignment of seven different varieties of early flowering tulips was received from the Dominion Experimental Station at Sydney, Vancouver Island, B.C., with a request that a test of these Canadian grown bulbs be made with imported stock of the same varieties. As far as the appearance, solidity and size of the bulbs are concerned, they compare very favorably with imported stock of the same varieties.

A list of twelve good varieties of Darwin and Rembrandt tulips will be found in the following varieties for the amateur's garden. These two types and the May flowering, or cottage garden tulips, as well as the Bizarre and By-bloemen tulips, are too seldom seen in our gardens. They are well suited for permanent planting in perennial borders where they can be left undisturbed for several years, and will give good results. They are not as well suited for flower beds or borders where summer decorative plants are grown, as they do not like to be dug up or disturbed very frequently when planted. The early flowering tulips are best for the last named purpose, but these are not nearly as effective for permanent planting as the Darwins, Rembrandts, etc., first mentioned. These last named are rapidly coming into prominence, and are very beautiful.

12 Darwin Tulips.

Andre Dorian, Anthony Roozen, Charles H. Marot, Clara Butt, Dante, Dream, Europe, Fra Angelico, Gretchen, Harry Veitch, Mr. Farncombe Sanders, Wedding Veil.

12 Rembrandt Tulips.

Alladin, Le Printemps, Bellona, Marco Spado, Candida, Purity, Diana, Red Prince, Esopus, Sirene, Gretchen, Undine.

Hardy Border Perennials.

In addition to the tests mentioned, over two hundred different varieties of hardy border perennials, most of them new or not common varieties, were planted in the trial grounds last spring. They have not, however, been planted long enough to give any very definite information on them. These will be subjected to the severest winter test possible, as they are planted on a very exposed piece of ground and will be given very little, if any, artificial protection during the coming winter.

The following varieties have shown points of merit that will doubtless give them a place among the better known, older types and varieties of these plants.

List of Perennial Asters (Michelmas Daisies) Tested.

Angliea rosea, 4 ft.; A. L. Fardell, 4 ft.; Beauty of Colwill, 4 ft.; Baldur, 4 ft.; Cordifolia elegans, 3 ft.; Dorwrochren, 4 ft.; Ericoides Enchantress, 2 ft.; Finehley White, 4 ft.; Mrs. E. N. Raynor, 4 ft.; Snowflake, 3 ft.; Thompsonii (dwarf), 18 in.; White Queen, 3 ft.

The Floribunda Aster.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated The Canadian Bee Journal.
Published by The Horticultural Publishing Company, Limited,

PETERBORO, ONTARIO

H. BRONSON COWAN, Managing Director.

The Only Magazines in Their Field in the Dominion

Official Organs of the Ontario and Quebec Fruit Growers' Associations and of the Ontario, Manitoba and New Brunswick Beekeepers' Associations.

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1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests. The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, and of The Canadian Horticulturist and Beekeeper, $1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising rates, $1.40 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December 1915. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 13,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1915	11,158	August, 1915	10,294
February, 1915	10,942	September, 1915	10,067
March, 1915	10,864	October, 1915	10,017
April, 1915	10,917	November, 1915	9,704
May, 1915	10,927	December, 1915	9,253
June, 1915	10,329		
July, 1915	10,448	Total	124,920

Average each issue in 1907 6,627
Average each issue in 1915 10,410

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not apply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honorable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

The Duty on Apples

The recent announcement by the Dominion Finance Minister, Hon. Thos. White, of the Government's intention to increase the duty on apples to ninety cents a barrel, which is equivalent to thirty cents a box, was heard with relief by thousands of Canadian fruit growers, who were looking forward with apprehension to the marketing conditions which were likely to and may even yet prevail next fall and winter. The agitation to have the duty increased was conducted mainly, in fact almost entirely, by the fruit growers of British Columbia. Only those who are in close touch with the thorough manner in which the case for the fruit growers was prepared and presented, largely by Mr. R. M. Winslow, secretary of the British Columbia Fruit Growers' Association, and a committee of directors of the association, can appreciate how ably the case for the fruit growers was handled by those who had it in charge.

The memorandum submitted to the government showed that the fruit growers of British Columbia had exerted every effort to place their industry on a paying basis by the adoption of modern methods of cultivation, the growing of suitable varieties, and the use of co-operative principles, but had failed to make the industry profitable. This, it was contended, was because of the competition of Pacific Coast fruit growers in the States, who, for some years, owing to excessive plantings, have been marketing their fruit in Canada at prices not only below the cost of production in Canada but in the States as well. The government was shown that the cost of production in British Columbia during the past four years has been higher than in Washington and Oregon. The cost of labor has averaged ten per cent. to twenty per cent. higher, and of the various materials entering into apple production, such as spraying equipment, box materials, nails, fruit paper and implements, about twenty-five per cent. more.

The memorandum set forth that in 1914 importations of fruits such as cherries, currants, peaches, plums, apples and grapes, with the duty included, but not the freight charges, amounted in value to over $4,000,000.

The imports of apples between 1909 and 1914 increased from 56,763 barrels to 330,907 barrels, in spite of the fact that in at least two of these years, 1912 and 1914, large quantities of apples were not harvested at all. These increased importations were made in face of the fact that home production in Canada during the same period showed a great increase.

The increase in the duty, it is believed, will tend to offset the handicap Canadian fruit growers are under through having to pay a duty on their supplies, and thus will help to put the fruit grower in Canada on a more equal footing with the United States growers. While it is not expected that this increased duty will prove of permanent benefit, inasmuch as during the next few years it will be capitalized in the form of increased land values, and the benefit therefore go to the land owner rather than to the grower, nevertheless it will be a relief for the present which will be much appreciated by many Canadian fruit growers, especially those in Western Canada.

Town Planning in Practice

When the Guelph Horticultural Society a year or so ago urged joint action by the horticultural societies of Ontario to have the assessment act so amended that people who improve their homes by the planting of vines and flowers shall not have their assessment increased, its members touched on a problem that was much larger than most of them probably realized. It is one of the greatest problems of our modern civilization. In these days when public bodies are co-operating to reduce the cost of living by the erection of working men's homes and to improve civic conditions by the planting of parks, their efforts are inevitably handicapped and often thwarted by the exorbitant prices asked for land. As long as nothing is done to prevent land advancing in value, where parks are planned and working men's homes erected the benefits sought will seldom or never be realized.

In Manchester, Eng., in 1909 a Housing and Town Planning Act was passed with the object of reducing the cost of town and estate development. Commenting on the results of this act, not long since the Manchester City News pointed out that the result had been to increase instead of diminish these charges. Continuing, it said:

> "Unless care is taken, town planning will result in worse living conditions instead of better—vide Paris and Berlin. Extravagant development raises rents and makes decent living conditions economically impossible except for the favored few. The city beautiful is of no practical use unless it be also a city of common sense, providing healthy homes for all classes."

The real problem is how to make land so cheap that it will be available for park and housing purposes. The best way to do this is to remove the taxes from buildings and to increase them on land values. This will have the effect of squeezing out the speculators and forcing unused land, or only partly used land, into use at prices which will keep down rental costs and make land more readily available for park purposes. Once this is realized more rapid progress will be made.

The Collapse of Cooperation

So much has been said of late years about the benefits to be derived by the adoption of modern cooperative principles in the marketing of fruit, and such glowing pictures have been painted of the prosperity of fruit growers in sections where cooperative methods have been established, that there is a tendency in the minds of many fruit growers, and of the public generally, to expect that the adoption of cooperative methods will solve practically all the difficulties that afflict both the grower and the consumer. This is unfortunate, as it will inevitably result in disillusion. Where cooperative methods are introduced successfully they invariably result in decided benefits both to the grower and the consumer. They fall short, however, of solving many of the greatest difficulties inherent in the fruit industry.

During the past ten years very successful cooperative organizations were established in the Pacific Coast States, more particularly those of Washington and Oregon. Some of these organizations have been held up as models for other fruit districts to follow. In spite of the early successes which attended their inauguration these organizations have utterly failed to prevent the

development of disastrous conditions for the fruit growers in these States. The early successes resulted in excessive plantings. Many growers seemed to expect that their associations would have no difficulty finding a market for all the fruit they might grow. Their hopes have been cruelly disappointed, as for several years past their product has not been sold at a price which has averaged the cost of production.

Of the 550,000 acres reported to have been planted in the states mentioned it is expected that seventy-five per cent. or more must go under to enable the balance to survive. During the four years ending in 1914 their own authorities estimate that the average selling price has been over twenty per cent. a box below the average cost of production. Mr. J. Howard Wright, the president of the Washington State Horticultural Society, in a recent address before that body, said, "Sheriffs' sales and foreclosures are the order of the day." Prof. W. S. Thornber, Director of the Extension Department, Washington State College, speaking at the Northwest Growers' Council in Spokane, said that ninety-five per cent. of the growers in one of the most successful valleys would gladly sell their holdings for considerably less than they paid for them, and willingly lose their time and interest in the bargain.

The Canadian Horticulturist is and has always been a strong advocate of cooperative methods. Their introduction at the present moment in the Niagara District, as well as in the apple districts of Ontario, would work a vast improvement in the financial returns to the growers. It is unwise, however, to look on cooperation as a "cure-all." It is to be advocated wherever needed, but if we recognize that it will not prevent us from suffering from the mistakes of overplanting or other mismanagement, we will take greater precaution to avoid the making of such mistakes.

* * *

At the annual convention of the Manitoba Horticultural Association, held last month in Winnipeg, a special committee was appointed to urge the enactment in that province of a Horticultural Societies Act, similar in character to the one which has proved so successful in Ontario. As the residents of Manitoba are keenly anxious to have the horticultural possibilities of their province fully developed, this committee's efforts are likely to be crowned with success. The horticulturists of Ontario, and in other provinces as well, will follow their efforts with interest.

* * *

Our fruit experiment stations are interested in the problem of preventing bees from being destroyed by the use of sprays and poison baits in the orchard and garden. Every year a considerable number of children die through drinking fly poisons containing arsenic. The State of Michigan has adopted a law to prevent the sale of flypaper or other forms of fly-killers which contain arsenic or other poison in sufficient quantity to be dangerous to the health of people. This matter is worthy of receiving more attention than it has hitherto.

* * *

Some nut or fruit-bearing trees set out on country roads fifty feet apart, would add much beauty and comfort to the highway. It would be necessary, of course, to have well-rounded roadways to drain off the water, for mud holes and poor roadbeds would not dry out quite so fast as where the sun shines on the roadbed all the time. The better road beds would be well worth while.

Now is a good time to take down the advertising placards that may adorn our fences, trees or buildings. They detract from the appearance of the premises and mar all efforts at civic improvement.

PUBLISHER'S DESK

This issue of The Canadian Horticulturist reflects the interesting character of many of the fruit growers and horticultural conventions that have been held during the past couple of months, inasmuch as it contains, either in whole or in part, a number of the best papers read by well-known authorities at these gatherings. In this respect The Canadian Horticulturist acts as a clearing house for the dissemination of horticultural information throughout Canada. By the publication of these papers thousands of people who are unable to attend the meetings, but who are interested in the discussions, are enabled to keep in touch with the latest thought and work of our leading authorities. More good is frequently accomplished by the publication of these reports in this manner than in any other way.

* * *

Of the four special editions of The Canadian Horticulturist published each year, the April Number is the one most eagerly watched for by those who are specially interested in gardens and flowers. Next month's issue will be our Fifth Annual Spring Gardening and Planting Number. The front cover will be different from any we have ever published and most attractive and pleasing in appearance. While articles relating to gardening will be prominent throughout, all departments of the paper will be strong. Mr. F. E. Buck, of the Central Experimental Farm, will discuss the popularity of annuals, describe the benefits derived from growing them and methods of cultivation, and give a list of the best varieties. Mr. A. P. Marshall, of Niagara Falls, Ont., will relate how last year, by the use of $3.00 worth of seed and a vacant plot, enough vegetables were grown for a family of seven. Miss Chrissie Anderson, of Anaster, will explain how she made her garden pay. The "Growing of Asters" will be dealt with by Mr. A. V. Main, of Ottawa. A splendid planting table for vegetables for the home garden will be given by Mr. W. T. Macoun, Dominion Horticulturist. These are only an outline of the features of the floral section.

* * *

In the fruit pages Mr. Seth J. T. Bush, of Morton, N.Y., will discuss other problems of the fruit grower than those he mentions so interestingly in this issue. He will also deal with the subject, "Success and Failure in Cold Storage." Prof. W. S. Blair, of Kentville, N.S., will contribute a paper on "Orchard Fertilization," based on the results of experiments conducted at the Kentville Experiment Station. "Packages for Long Distance Shipment of Tender Fruits" will be the subject of an article by J. M. Creelman, B.S.A., of the Cold Storage Station, Grimsby, while "Better Net Returns for Local Associations" will be dealt with by C. F. Howard of Hagersville. There will be a practical helpful article by L. G. Robinson, of Berwick, N.S., on spraying. In spite of the fact that this will be one of the largest issues of the year, advertising space will be at a premium, and advertisers are again urged to make reservations early.

SOCIETY NOTES

Stratford

The Horticultural Annual for 1916 issued by the Stratford Horticultural Society is ambitious in character. It is nicely printed on a good quality of paper, well illustrated, and contains 20 pages. The report of the president, covering last year's work, is printed, as well as a list of the officers and committee and the options for 1916. A school children's exhibit of bulbs will be held in the spring, and exhibitions of seasonable flowers in May, June, July and August. There will be a school grounds competition and a lawn and garden competition. The membership last year was over 500. Over 26,000 bulbs and plants were distributed last year, and 230 school children's home gardens were entered in the children's garden competition.

Guelph

The Guelph Horticultural Society is one of the most active in the province. Last year, in addition to giving The Canadian Horticulturist to all its members, it distributed plants, bulbs, small fruits, vegetable seeds, shrubs and implements, or certificates to the value of 50c for horticultural requisites, to be purchased at any seed store. Vegetable and aster seeds and gladioli bulbs were distributed in the senior grades of each group to be grown at home by the people. The society attended to the planting and arranging of window boxes at the city hall, fire hall, post office and public library, all of which helped to beautify the city.

Hamilton

An interesting public lecture was arranged by the Hamilton Horticultural Society for the evening of February 18th, which included an illustrated lecture by Mr. W. A. Childs, M.A., on "Wild and Informal Gardens." A membership competition is being conducted, and arrangements are under way for monthly lectures and garden meetings during the summer.

St. Thomas

Winter as well as summer the members of the St. Thomas Horticultural Society are active. Last month an interesting lecture was given by John Dunbar, Superintendent of Parks of Rochester, N.Y., who spoke on the "Influences of City Parks on Civic Life." Mr. Dunbar, an article by whom appears in this issue, was made an honorary member of the society. The society has decided to ask the city council for permission to enclose a small space in the middle of the woods at the south end of Pinafore Park, where the natural plants now growing can be protected and various other plants introduced from surrounding woods and propagated. Members of the society are planning to form a botanical or nature study club for the purpose of studying the plants that grow in the surrounding woods, and having these introduced into Pinafore Park, where they may be protected. The society has distributed its list of options for 1916, which are unusually liberal and attractive.

Better Net Returns for Local Associations*

Dr. A. J. Grant, Manager Thedford Fruit Growers' Association

THERE are many ways in which the members of fruit growers' associations can increase their net returns, such as by decreasing many of the expense items in connection with the production and handling of apples. Few members of local associations really understand the selling standards for apples, and yet the standards are the same as those governing the sale of any other commodity, viz.: quality.

Anybody can understand that a barrel or box of No. 1 apples will sell for more than the same quantity of No. 2 stock, or that good Spys and Snows will sell for more than Bellefleurs, but when it comes to the sale of a car-load or several car-loads or perhaps the entire pack of an association, then we are liable to lose sight of the fact that it is the complexion of the entire lot of apples, from the standpoint of quality, which governs the price. Generally speaking, the greater the percentage of No. 1 red fruit, and the fewer poor varieties, the greater the selling price per package. I know a man who in the season of 1914, when low prices prevailed, exported one car of very excellent Baldwins, making a net return of some $3.30 per barrel. The price was noised about the district and nobody took the trouble to ask for the details of the sale, so that much dissatisfaction arose among the members of several associations because they did not receive at least $3.30 per barrel for their entire output, including varying quantities of inferior varieties as well as low percentages of No. 1 apples. This brings us to the first point that I would like to drive home. If you expect your managers to get you in on the top notch prices which you hear quoted from time to time, give them the necessary percentage of good No. 1 red fruit and a first class variety list. These are the elements which make for high prices. The packs with a low percentage of No. 1 and with perhaps a lot of poor varieties, must accept lower prices, under the same market conditions.

Thorough pruning, intelligent cultivation and persistent spraying are the things which we must look to, if we wish to raise our percentage of No. 1 apples. The poor variety list must be assisted by liberal grafting to good commercial sorts. Many growers are afflicted with inferior varieties in the orchard and oftentimes none too freely blessed with quick selling varieties. Let us graft those kinds which are depreciating the sale of our pack and get at it quickly. When you improve your variety list you will improve your returns by no small margin.

In our association we found it such a difficult thing to get thorough pruning that we have started out a pruning gang to make a complete circuit of every orchard in the organization. If the grower wishes, we pay the pruning expenses and charge it up to next season's apples. You can't talk good prices for apples from unpruned trees. Prune well first, then spray, as the season demands it, at least three or four times, and you have taken a big stride toward putting more money in your pocket at the end of the season. I cannot pass such a topic as spraying without emphasizing thoroughness and a sufficient number of applications. We take it for granted that all apply the three standard sprays, but there is a most critical period just after the apples are nicely formed, and lasting several weeks. If the weather at this time is damp and cool then get busy with the spray pump, and you will be making money pretty fast. Drench your trees with abundance of good chemicals and save money by anticipating your wants in spray material and ordering in sufficient quantity at the proper time to get in on the best price. We can save some money by using a cheaper and more easily packed container for our lower grades.

By producing good fruit which sells for more money, you increase your returns in another way. It costs less money to grade and pack a good run of apples than it does to handle a poor run. We sometimes hear association members complaining about the cost of packing; here is the very place to lessen the cost by producing better apples. I have frequently noted, in our own packing house, the remarkable difference between the time required to go through a good run of apples as compared to that required for apples which were grading low with a lot of culls.

One of the best ways that I know of assuring yourself a ready market for your pack, at a good price, is to establish standards for your various grades, (getting well in advance of the requirements of the fruit-marks act) and then guard these standards most zealously. One of the greatest shortcomings of the apple business is summed up right here. Most of us are too easily satisfied with the ideal apple for a particular grade. We have in mind simply what will pass inspection, and forget the really important thing—what the consumer is going to think about it after he has paid some real good money for the barrel or box of apples.

Why is it that we can walk down the streets of Toronto and see such an abundance of high class apples on sale which have been brought in from the Western United States, and far away British Columbia? You will find the same conditions in other Ontario cities. The quantity imported is steadily increasing because there is a demand for a high class, reliable apple, properly packed, and we fruit growers will persist in blinding ourselves to this big outstanding fact. What usually happens any line of business which refuses point-blank to supply what people are demanding? The business has difficulties, and mighty serious difficulties, if a sane line of policy is not adopted. Our grading of apples, generally speaking, is much too low and for this reason the trade demanding high class stock must seek its requirements elsewhere, thereby losing for us the cream of the business with the accompanying high prices. We have some progressive individual growers and some associations who have been packing high class grades and doing well in the industry. Why not every grower and association emulate the example of these few, and bend every effort toward producing first class apples. Let every one of us broaden our sphere of vision as to what is really a first class No. 1 apple, and a first class No. 2 apple.

We have associations in Ontario who can always sell their pack at a good advance over the common herd. Why? Simply because they have established a reputation with the trade for a high class, uniform pack. Let every association try to establish standards of grading which will assure them a good reputation with the trade and when you are fortunate enough to win this reputation, guard it carefully as one of your best assets.

The famous Climax fruit box, which was so thoroughly discussed at the recent convention of the Ontario Fruit Growers' Association, is here shown. It is cheaper than the standard box and allows the buyer to see what he purchases. As no standards for it have been set by law, one of the objections raised to its use is that this type of box will soon be made of many different sizes and width and thickness of slats, and thus result in confusion, as has been the case to some extent in British Columbia, where it is used extensively. It is a box that evidently has come to stay, and, therefore, should be standardized as soon as possible.

One of the best ways to lose the reputation of a good pack is to become economical, in the wrong direction, and employ some cheap, unreliable labor; you save a few dollars in the pay roll and lose many hundred, as well as getting in wrong with the trade—a loss which cannot be estimated in money. There are two brands of economy, "Business Economy," or "Stopping Leaks" and "Foolish Economy." Let me commend to you the former as one of the key-stones of success in the apple business or any other business, but foolish economy is doing more right now to hold back fruit growers' associations than many other agencies combined. Commencing at your manager, who should have a thorough knowledge of the business, down through the whole staff, you must have competent men. The ideal combination is "Brains," and "Energy," hard to get, but when you get such a staff, pay them first class wages and they will show results everytime, if the growers will give them the proper fruit to handle. They will bring your brand of apples to the surface so that you will be sure of a ready market at fair prices, regardless of overhead conditions. There is always a demand for the good article.

The market for apples is a very unstable one and it is our business as growers, to do all possible toward writing the word "apples" indelibly upon the want-list of every housewife. How are we going to do this? First and foremost—give the consumer a run for his money by supplying him with good, reliable, uniform fruit at a reasonable price; pare your cost of production and overhead expenses to the lowest possible limit, but don't do it at the expense of quality or uniformity of grade. I would like to see every association using central packing houses, as it is then possible to get uniform grading. Keep to your standards. The central packing method is cheaper than the orchard pack, and it is easier to get one good capable foreman, who will stick to his grades, than it is to get several foremen to handle orchard gangs. In the latter you cannot get the same uniformity, as you have too many individual opinions.

Much can be accomplished along educational lines. Everybody is now clamoring for Northern Spy; we won't deny the fact that it is the best general purpose apple that we produce, in its season; but there are other apples of merit which we are producing in large quantities, the virtues of which are largely unknown to the public.

*A paper read at the recent annual convention in Toronto of the Ontario Fruit Growers' Association.

Some excellent newspaper advertising has already been carried on with much benefit. We hope to see this advertising continued.

There is another method of educating the public, and that is through the legitimate fruit trade. There has been too much antagonism in the past, between the fruit trade and the fruit growers. Such a state of affairs is not in the best interests of either party and a better understanding all around would help the industry. We need the fruit jobber and the retailer and they need us; they can boost our wares to their own advantage, as well as ours, but everybody concerned must have confidence in "the other fellow." Every retailer has his clientele of customers, who look to him for advice in such matters; these men can do much toward stimulating the demand for apples by recommending the proper variety for certain purposes, varieties in season, etc. Let us bury the hatchet and get closer together.

Many of our associations have another pernicious habit which reduces our net returns. That is forcing on the market unseasonable varieties. Lack of storage facilities is a difficulty in many cases, but there is always storage to be had in the larger centres, and the holding of some of the later maturing varieties for even a few weeks may make a great difference in the net returns to the grower on the season's business. I am not advising associations to go in for wholesale storage of apples, but I am advising that you offer the various varieties when the trade wants them. We growers are sometimes in such a hurry for our cheque at the close of the season, that a sacrifice is made in order to turn all the apples into money.

The business of a fruit growers' association should be conducted upon sound business principles, keeping as free as possible from speculative ventures, but you will have your reverses, just the same as any other business. Learn to take such things cheerfully; you will have good seasons and you will have bad seasons, and I have repeatedly noticed that the fellow who is dodging in and out of associations always jumps the traces after a lean season and misses the good one to follow.

Basket Packages for Fruit

F. M. Clement, Horticultural Experimental Station, Vineland, Ont.

THE basket as we use it to-day is not the product of a day or a year, but has been evolved from home-made boxes, baskets of various sizes and shapes, boxes and other containers that at various times have been used for delivering fruits to the markets. It is a temporary container, being only used for delivery and then discarded or destroyed. The consumer pays for the container with each basket of fruit that he buys. The factor of cost in the basket is essentially then an important one.

Because of the demand for a basket at a low price, the tendency has been somewhat to make a cheap basket—cheap material, cheap manufacture, cheap basket. The leading growers, however, demand a good-quality basket. The veneer may vary in thickness. Veneer of good quality, cut in not more than sixteen to the inch for six-quart baskets, and not more than fourteen to the inch for eleven-quart baskets, makes a fairly substantial package. Material of hard wood of excellent quality may be cut a little thinner; the handle for six quarts should be cut not more than eight to the inch, and for eleven-quarts not more than seven to the inch. The bands must be strong, of good material, and all parts must be well nailed. I shall be pleased to have the opinion of manufacturers on these standards.

The sizes of the so-called "six" and "eleven-quart" baskets are fixed by law, but it is difficult to find baskets that are constructed exactly according to the standards.

AYLMER SPRAYERS have won Medals and are used by seven Governments

USE THE AYLMER SPRAYER

Fruit growers use Aylmer Sprayers because they give RESULTS. Aylmer Sprayers have the force to drive the mixture into crevices of bark and buds and make it penetrate the hiding places of the destructive little insects. No time wasted on repairs during the Spraying Season if you get a Sprayer that DOES NOT GET OUT OF ORDER. Any man who has had the exasperating experience of having to stop on account of loose "packing" on the pistons, will be glad to own an Aylmer Sprayer. It is the only Sprayer constructed without troublesome "packing." In the Aylmer, the pistons are made tight by three bronze expanding rings, the same as the pistons in automobile engines. This Sprayer is easy to pump and there is no pressure leakage; every ounce of pressure being turned into spray work. Agitators prevent clogging; nozzles are up-to-date; throw full distance and with full power from a stream to a spray. Every part designed to give perfect service. Prices low. FREE GUIDE TO SPRAY MIXTURES sent on request.

Aylmer Sprayer Outfit:

Pump, complete, 10 feet hose; 2 Bordeaux nozzles; 1 brass stop cock; 1 Y; 1 long extension rod; Without barrel $15.25. Lined Bamboo extension rod, in place of iron rod, $1.50 extra. Barrel, $3.00 extra. Shipped freight prepaid, any station in Ontario.

Aylmer Pump and Scale Co. Ltd.
WATER ST., AYLMER, ONT.

Douglas Gardens
OAKVILLE, ONT.

A gentleman who lives in Toronto, and who has had experience in building and planting, has recently been examining the lists of Herbaceous Perennials to be found in many of the leading Plant Catalogues issued in the U. S. and Canada. His conclusions given—not to the writer—but to a mutual friend, is that there is no occasion for going past Douglas Gardens for this class of plants: that the prices are no higher, and the plants are at least equal to the best to be found elsewhere.

The testimonials, the originals of which are in our possession, printed in our new and enlarged Planting List, go to support this gentleman's conclusion.

We are ready to send this Planting List to all who request it, and to fill orders from old and new customers with plants fully equal to the best to be got anywhere, and superior to most that are sold elsewhere.

JOHN CAVERS

Peerless Plant Boxes

MADE
Close Cornered with New Machinery out of Hardwood Veneer

PEERLESS IN NAME
AND
PEERLESS IN QUALITY

Order Early from

Canada Wood Products Co.
ST. THOMAS - ONT.

NOTICE TO CANADIAN BEEKEEPERS

We are making a specialty of the pound package trade. Our improvement on the package, making it larger and lighter and giving it more ventilation, enables us to guarantee its safe arrival. We will ship from our yards in Alabama during April, May and June, packages and queens at the following prices:

Pound package without queen, $1.25—with queen, $2.00; 2-pound package with queen, $2.65—without queen, $1.90; 3-pound package with queen, $3.50—without queen, $2.75. Queens, untested—one for $1.00, six for $4.50, 12 for $8.50. Select, tested, $2.00; breeders, $3.00.

Our stock of 3 band Italians have stood the test for 20 years; there is none better. We guarantee them to be free from disease. Pure mating and no inbreeding. Your money refunded if not satisfied. We sold the A. I. Root Co. two carloads, and will sell them this season. Our aim is to carry a surplus of stock so as to fill all orders by return mail. 5 per cent. discount on all orders before March 15th.

Reference—American Exchange Bank of Apalachicola, Fla., and the A. I. Root Co.

After March 15th our address will be Fitzpatrick, Ala.

MARCHANT BROS., SUMATRA, FLA.

PRODUCTIVE BEEKEEPING

is the title of a new book of 326 pages by Mr. Frank C. Pellett, State Apiarist of Iowa.

As the name of this book indicates it is especially adapted to the needs of the practical beekeeper. Not a discussion of scientific principles, but of practical methods.

Sources of Nectar, Wintering, Marketing, and Laws that Concern the Beekeeper, are titles of chapters of special interest.

Regular price $1.50 postage extra.

We offer this latest book with the American Bee Journal one year, both for $2.00, Canadian postage 15 cents extra.

134 illustrations, attractive cloth binding.

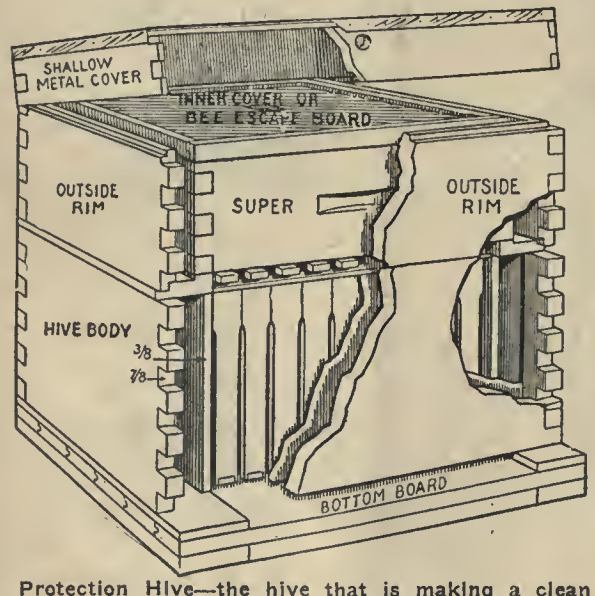
AMERICAN BEE JOURNAL, Hamilton, Illinois

Baskets manufactured by various companies vary so much that much inconvenience is caused in uniform packing, finding covers to fit, and loading in the car. It is suggested that when once the size for quantity and the dimensions are fixed by law, the blocks be supplied to the manufacturer by the government to insure uniformity of manufacture.

The quantity the baskets should hold, and the shape the baskets shall take, are important. Two sizes of baskets for quantity seem to be recognized by all growers; that is, those baskets that are now known as "six" and ordinary "eleven-quart." The former is generally accepted as it now stands for all small fruits, including grapes and fancy peaches. With certain requirements of quality in manufacture, no change seems advisable. The latter basket, that is the package that is now known as the eleven-quart, has come in for a great deal of criticism. It is claimed that it is too low to take three rows of No. 1 peaches layered, and that with the variation between the size of the bottom and the top fixed by law, it is impossible to pack three layers of uniform size. The smaller peaches must be, of necessity, placed in the bottom if a uniform pack is to be maintained. The law does not permit this; consequently it seems necessary to modify the package or the law. The quantity it holds seems satisfactory to both grower and consumer. It is also a convenient package to handle.

The law states that a basket shall be a certain length at the top and at the bottom, the difference being two inches. At the same time the law states the baskets shall be a certain width at the top and at the bottom, the difference being 1⅛ in. This permits of much more flare at the ends than at the sides. Why this difference? The strength of the basket is somewhat weak-

CANADIAN BEE WARE



Protection Hive—the hive that is making a clean sweep everywhere.

Double walled and single walled dovetailed hives—Canadian standard in width, power outfits, excluders, ventilating escapes, smokers, sections, wedge drivers, Fdn. fasteners, shipping cases, bees, queens, honey, wax, comb foundation (including Dadant's—finest in the world).

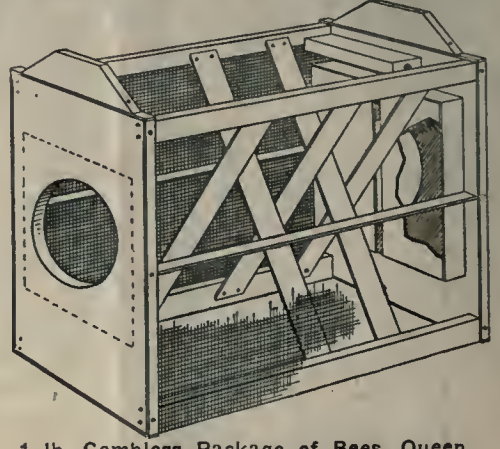
Everything for the Beekeeper manufactured on the premises.

Our work is a by-word for accuracy and finish. Our products bear the imprint of thought and care, even in the smallest detail. This is because we are PRACTICAL APIARISTS.

BEES AND QUEENS

How about your 1 lb. combless package of bees? Also Queens. In order to handle early business we have established an apiary at Hayneville, Alabama. All orders mailed to Chas. E. Hopper & Co. at this address will receive the same prompt attention as if addressed to the home office.

We are prepared to handle Carnielan and Caucasian bees, though we no longer breed them. Orders for these should be sent to the home office. All bees will be ready for shipment the first week of April.



1 lb. Combless Package of Bees, Queen included. The modern way to ship bees.

CHAS. E. HOPPER & CO., Toronto, Ont.

26 years of knowledge and experience we give you in every order.

ened by the increased slope of the ends, for which there is apparently no necessity. It is also this increased length of top over bottom that makes uniform packing most difficult. Some flare is necessary in the basket because of conditions of manufacture and the advisability of "nesting" for shipment and storage.

For packing the fruit, the more perpendicular the side the easier and more uniformly the fruit can be packed. The difference in width between top and bottom also permits of air circulation between the baskets, so essential in long-distance refrigerator shipments. The minimum flare for manufacture is, however, sufficient for a maximum of ventilation in the car.

Generally speaking, we are agreed on the more perpendicular side, but the point that seems to be more difficult of decision is how high the basket should be. Keeping in mind the fact that this basket is also used for cherries and plums that are somewhat soft sometimes, it seems necessary then to make the height the maximum that will get three layers of No. 1 peaches. The whole situation, then, evolves itself into one of size of No. 1 peaches, and then the minimum height that will accommodate three layers of peaches of this size. The present government standard for the eleven quart is five and three-quarters inches deep perpendicular. I am highly in favor of increasing the height of this package one-quarter inch. This will raise the standards of No. 1's. This basket will accommodate three layers of No. 1 peaches and at the same time not make it too deep for the softer fruits.

There is in use quite largely also a basket known locally as the nine quart. This is made with the same size of bottom as the common eleven quart, but the height is the same as that of the six quart. This basket will take two layers of fancy fruit. By law, this basket must be stamped with the number of quarts it contains when full before it is a legal package. This package might also be standardized for certain grades of fruit. It takes two layers of fancy peaches exactly. At the same time, if this is standardized it should be made a special package for a certain grade of fruit and be protected from the poorer grades.

One other package that was used somewhat last year was the American Bushel, which holds forty-five pounds net of fruit or three eleven quart baskets. The place of this package is difficult to establish. A certain trade will take a large quantity of fruit for canning purposes in this package. At the same time, it tends to lessen a great deal the price to the grower. The price is already at a minimum, and if there is any danger of this package cutting into the basket trade I would not favor it.

The Fall Packing and Exhibition Number in September of The Canadian Horticulturist was the best magazine I have ever seen. —H. A. Nicholls, F.R.H.S., London, Ont.

The Root Canadian House

185 Wright Ave. - - Toronto, Ont.
MAPLE SYRUP WANTED.
All kinds of Bee supplies, books and journals. None better in quality. Put in your order now for 1 lb. packages of bees. Satisfaction guaranteed. Early discounts.

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We will buy your wax or make it into the best grade of foundation at low rates.

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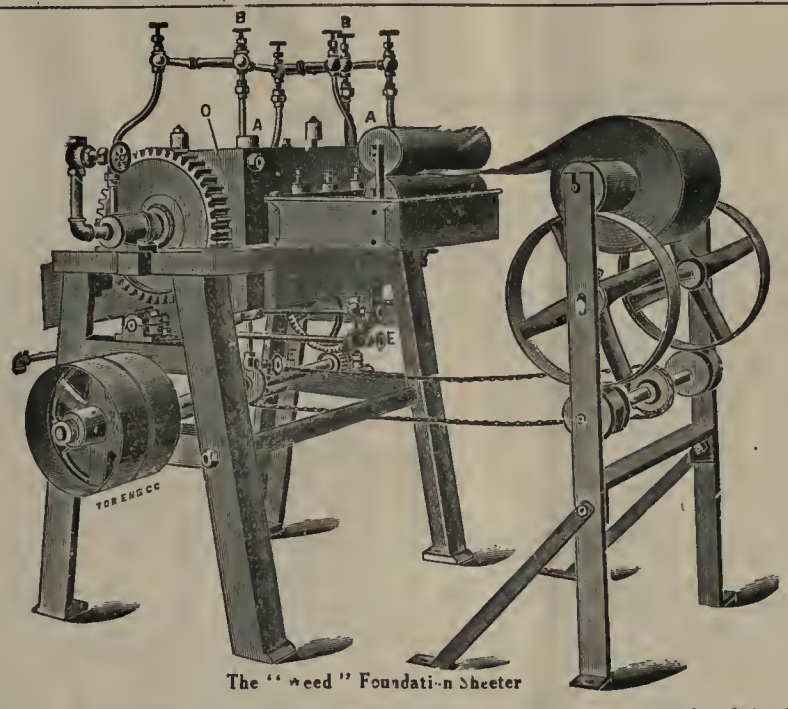
Rt. No. 5, Chatham, Ont.

COMB FOUNDATION

Made by the "Weed Process"



The "Weed" Foundation Sheeter

FOUNDATION made by this process excells all other in strength of texture. This feature, combined with nice, straight uniform sheets, good cell walls and thin base, gives it world-wide reputation for general excellence of quality. So much better than the ordinary, and costs no more—Try it.

Customers' Wax made up by "Weed" Process.
Beeswax taken in payment of making at trade prices, if desired.

THE HAM & NOTT CO., Limited, Brantford, Ont.

The Rarest and Best Offer Yet

A daughter of one of Dr. Miller's best honey getting queens and the Beekeeper's Review one year for only $2.00. Every one will want a daughter of those famous world champion honey producers. Listen to the record: a yard of 72 colonies produced in one season 17,684 finished sections of comb honey, or an average of 245 sections per colony. This is without a doubt the world's record crop from a yard of that size. Start breeding up a honey strain of bees by using one of those famous daughters this season. This is the first time stock from this noted yard has been on sale. Our breeder, one of the very best in the gulf states, will breed from one of those best queens, and as his original stock is of the best three banded stock, wonderful results are to be expected. Let us book your order at this time for one of those fine queens, for we only have for sale something like 500 for June delivery. The queen is well worth all we are asking, $2.00 and the Review a year.

1000 Pound Packages of Combless Bees For Sale with Queen

Did you ever ask a breeder to quote you a price upon a thousand pound packages of combless bees? If you did, you will have noticed that he took his pencil from his pocket and began to figure what such a sale would save him in advertising, postage, office help, etc., and the result would be that he would make you a very close price. Now we have that very close price on one pound packages of bees, and, as is usual with us to charge no profit on supplies furnished subscribers of the Review, none will be charged upon those, but our subscriber will get all the advantage of this good buy. Notice that this close price is not for a late fall delivery, but for April and May delivery—later deliveries at a less price that will be quoted later, or by mail for the asking. Upon this deal we have two big points: First, the price; second, an old experienced breeder who has spent his life breeding bees and queens for the market. We mention this so you will not get it into your heads that this is a "cheap John" lot of goods, but that they are as good as money can buy, no matter what price you pay. The price is $16.00 for ten pound packages of these combless bees, each containing a young untested three banded Italian queen of this season's rearing. Additional pound packages, without queens, one dollar each. For larger lots ask for special price, stating how many you can use and when the delivery is to be made. They are shipped from Alabama, in light, well ventilated cages, by express. Just a word to the wise: Book your order early! Address

THE BEEKEEPERS' REVIEW, Northstar, Michigan

THE
BEEKEEPERS' DIRECTORY

The following beekeepers will be able to supply Bees and Queens in any quantity for the season of 1916. Order early.

E. E. MOTT,
Glenwood, Mich.
Northern Bred Italian Queens.

J. P. MOORE,
Morgan, Ky.
Try Moore's Strain Next Year.

W. R. STIRLING,
Ridgetown, Ont.
Fine Italian Queens.

J. I. BANKS,
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Italian "Queens of Quality."

P. TEMPLE,
438 Gladstone Ave., Toronto, Ont.
Canadian Bred Italian Stock.

THE DEROY TAYLOR CO.,
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Northern Bred Italian Bees and Queens.

M. C. BERRY & CO.,
Successors to Brown & Berry,
Hayneville, Ala.
Best bred Italian Queens and Bees.

THE PENN COMPANY,
Penn, Miss.
Bees and Queens.

F. W. JONES,
Bedford, Que.
Bees by the pound, also best Italian Queens.

H. C. CLEMONS,
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Three band Italians bred for business.

THE ROOT CANADIAN HOUSE,
185 Wright Ave., Toronto, Ont.
Canadian and U.S.A. bred queens and bees. Bees by the pound or colony.

A. E. CRANDALL & SON,
Berlin, Conn.
"Quality" Italian Queens.

JOHN A. McKINNON,
St. Eugene, Ont.
Beat northern bred stock.

WM. ATCHLEY,
of Mathis, Texas.
Wants to sell you your early bees by the pound. Queens in season.

STOVER APIARIES
Mayhew, Miss.
Not a single complaint.

J. W. K. SHAW & CO.,
Loreauville, La.
Everyone knows their strain of three-band Italians.

Apples in Boxes and Barrels

C. W. Baxter, Chief Fruit Inspector, Ottawa.

SINCE the box as a commercial package for apples came into prominence a few years ago, the merits of both it and the barrel have been so often debated that there is little that is new left to be said on the subject, especially with reference to the barrel. The question has often been asked, "Which is the best package for apples, the barrel or the box?" There is no one best package. Our experience in marketing the crops of 1914 and 1915 has shown this.

"Box Packing" and the marketing of apples in boxes have been making history rapidly during the last few years. It is not long since our Instructors were teaching so many different styles of packs, that the average packer in the east was so confused that he despaired of ever being able to pack apples in boxes commercially. This, however, has been overcome, and we have, to-day, four simple rules, which, if followed, will give us a perfect pack. In fact, experienced packers tell us that nearly all the apples in Eastern Canada can be packed under the three styles, "3-2, 2-2, and 2-1." The methods to determine the style of packs to be used have been simplified, and with good fruit; practice is the only other thing necessary to turn out a box pack equal to the best.

We say "Box Packing" has been making history. Let us review this history briefly: We are indebted to the growers and packers of California and the Pacific Coast States for the inauguration and perfecting of the present methods. Necessity had much to do in bringing this about. The growers in the Pacific Coast States having bought fruit land of high value, realized that because of their being situated so far distant from the large markets of the east and because of the heavy freight charges in placing their fruit on these markets, they must put out a pack that would be superior to, and different from, the eastern product, in order to obtain their fair share of the trade.

The appearance of these neat packages of very fine looking fruit, and the high prices realized, had a stimulating effect on eastern growers and packers.

It cannot be said that they were quick to adopt the box as a package for apples nor have they taken kindly to it yet, but I believe it was in a degree responsible for the improvement in barrel packing and grading, which we have seen. I also believe that this has been largely responsible for bringing about apple packing laws in the various states and the federal law of the United States.

As the production of apples on the Pacific Coast increased and the Eastern product im-

*Extract from an address delivered at the recent annual convention of the Ontario Fruit Growers' Association.

Pound Packages and Queens

We have established a Bee and Queen Breeding Yard in the south to handle our growing trade. You should order early to avoid delay. Send order on a postal,—no money until Bees arrive. Delivery begins April 1st. If possible order in 5 lb., lots, it is cheaper in express charges. Satisfaction guaranteed. Price, $3.25 per lb.

CHAS. E. HOPPER & CO., TORONTO, ONT.

Italian Bees and Queens

3 banded from select imported mothers. Bees by the pound. Safe arrival and satisfaction guaranteed. Give us a trial order. Write for prices. No disease. Are now booking orders for early delivery.

Maxwell Scott & Co.
121 Hogarth Avenue - Toronto, Ont.

"POUNDS OF BEES"

To the practical Beekeepers of Canada. Past experience proves to us that it does not pay to sell bees in pound packages earlier than May 1st, but after that date, which is just after our Orange Blossom flow, finds our hives full of young bees and sealed brood. So we can offer bees after May 1st, 1 pound, $1.50; 5 pound lots, $1.25; 10 pound lots, $1.00 per lb. In lots of 100 pounds in separate pound packages, 90c. per pound F.O.B. Rialto, Cal. Untested queens to go with them, $1.00 each, $4.25 for six, $8.00 per dozen; $60.00 per 100, or queens by mail at above prices. Safe arrival and satisfaction to all customers. Express charges to or near Toronto, around 25c. per pound in lots of 10 or more at one time.

RIALTO HONEY CO., Rialto, Cal., U.S.A.

3 Band Italian Queens

My Queens are bred from imported mothers. They are the best for honey gathering and gentleness. I fill orders as promptly as possible.

PRICES
April 1st to July 1st

	1	6	12
Untested	.75	4.25	8.00
Sel. Untested	.90	5.00	9.00
Tested	1.25	7.00	13.00
Sel. Tested	2.00	11.00	20.00

GUARANTEE
That all Queens will reach you in good condition and to be purely mated, and will give perfect satisfaction.

L. L. Forehand
Fort Deposit Ala., U.S.A.

Italian Queens
Three-Banded

Ready April 1, of an exceptionally vigorous and long-lived strain of bees. They are gentle, prolific, and the best of honey gatherers. Untested, $1.00; 3, $2.75; 6, $5.00; 12, $9.00. Tested, $1.25; 6, $6.50; 12, $12.50. Send for my free circular and price list, and see the natural conditions under which my queens are raised. Will book orders now.

JOHN G MILLER, Corpus Christi, Texas.
Corner C St., and Coleman Ave.

BEEKEEPERS!

Jones' Weed Process Comb Foundation, Wax worked into Foundation, Italian Bees in Pound Packages, Improved Model Hives, and a full line of Bee Supplies. Catalogue free.

Write us if you have any BEES-WAX to offer.

F. W. JONES
BEDFORD, QUE.

proved in quality and packing, the average price realized for boxes in the Eastern markets was not so great. Wider markets were sought and large shipments were made to the Prairies. Two or three years experience in these markets has revealed the fact that the demand for the higher grades, such as Extra Fancy, Fancy and No. 1's, wrapped and carefully packed, was very limited and that what the majority of the consumers wanted was apples of good quality; but they did not want to pay for frills. The result was that a cheaper package was adopted and this season a large portion of the Pacific crop was marketed in open crates. Whether this is a desirable package or not will likely be discussed later, and it may be a question of individual market requirements, but our experience with apples in boxes properly handled, wrapped and packed, indicates that the demand for these at remunerative prices to the grower has its limitations. I am of the opinion that the future demand for apples in boxes will be determined largely by the improvements in the methods of grading and packing in barrels.

Precooling Fruit Markets*

Edwin Smith, Dominion Cold Storage Division, Grimsby, Ont.

THE precooling work at Grimsby is divided into, first, commercial cold storage and the precooling of fruit for the general public; second, demonstrations in fruit handling, packing, precooling and transportation; third, experimental refrigeration tests.

The first precooling last season was with strawberries. On June 28th a shipment was handled for the Vineland Growers' Co-operative for Winnipeg Market. The berries were shipped by refrigerated express, and the car was opened on July 2nd. The berries arrived at destination without decay but sales were poor owing to a poor market. From an economical and temporal view the shipment was a failure. The fruit was ripe at the time of forwarding and was shipped in Ontario 24-quart crates,—the poorest strawberry package that could be used for that purpose. The berries arrived in a fair condition, so that from a physical standpoint the venture was successful and further trials are to be made.

Our experiments with the maturity of strawberries for precooled shipments indicate that while ripe strawberries lose in texture and will not stand the package pressure for this length of shipment, on the other hand berries picked green advance but little in color when precooled and shipped under refrigeration. Strawberries must show some color, but must still be firm when picked for precooled shipments.

Precooling Cherries.

At the beginning of the season a carload shipment of cherries was made jointly with the Grimsby Fruit Growers', Ltd., and the Winona Fruit Growers', Ltd., to Winnipeg, including Early Richmonds and a few Black Tartarians. This shipment was of special importance for three reasons: First, the Early Richmond is not considered as good a shipper as the Montmorency; Second, it tested sweet cherries on freight shipments to the west and, third, it gave sour cherries a ten day shipping test. As all lots arrived in Winnipeg in good condition it showed that Early Richmond cherries could be precooled and shipped

*Extract from an address delivered at the recent annual convention of the Ontario Fruit Growers' Association.

HOT BED SASH

Manufactured from

CLEAR RED CYPRESS.

Stock size 3 ft. 4 in. x 6 ft. 0 in., for four rows of 8 inch glass, lapped.

Price—1⅜ in. thick $1.20
1¾ in. thick $1.50

F.O.B. TORONTO.

We recommend the 1¾ thick as it is more substantial and will give better satisfaction.

Write for CATALOGUE of our SASH, DOORS HARDWOOD FLOORING, etc.

R. LAIDLAW LUMBER CO.

"Everything in Lumber"

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WHOLESALE PRICES

On strawberry plants to the planter. And other kinds of small fruit plants at very low prices. Such as Raspberry, Blackberry, Currants, Gooseberry, and Grapes; also best kinds of Rhubarb and Asparagus Roots. 23 years' experience in propagating and shipping small fruit plants. There are no better plants grown in Michigan. Everything fully guaranteed. Large illustrated and descriptive catalogue free.

A. WESTON & CO., Bridgman, Mich.

Business as Usual

The St. Catharines Cold Storage and Forwarding Co., Ltd.

The old reliable headquarters for Spraying Materials, Pumps and all Fruit Growers Supplies.

Having purchased large quantities of Sulphur, Lime-Sulphur Solution and Arsenate of Lead before the last big jump in prices, we are in a position to supply growers in small lots at present wholesale car load prices. Be sure and get our prices before placing your orders. We sell the famous "Friend" Power Spraying Machine and Outfits. Also the "Gould" Pumps and Accessories.

The St. Catharines Cold Storage & For'd Co., Limited

St. Catharines, - Ontario

Don't Limit the Beauties of Your Flower Garden

by thoughtless seed buying! Choose the varieties with an eye to the possibilities of your own particular space and location—but be even more careful to get

Ewing's Reliable Seeds

Then you can be quite sure that the seeds will germinate and grow—that the plants will be strong and healthy—and that the bloom will be abundant and beautiful.

Write for our new 1916 Illustrated Catalogue—the biggest and finest yet! It will help you to plan—and realize—a garden that will be a delight. If your dealer has not Ewing's order direct from us.

The William Ewing Co. Limited
SEED MERCHANTS 47
McGill Street - - Montreal

The Georgian Bay Tree Pruner
Saves in Many Ways
Every Orchard
Needs One

The Price is $2.50
Write to G. W. BULL, Mfr., Wiarton, Ont.

west nearly as well as Montmorencies, standing a shipping test of ten days, and that sweet cherries may also be precooled and shipped west.

To demonstrate how precooled cherries stand up after withdrawal from the refrigerator car a part of the experimental shipment was re-shipped by ordinary express to Brandon, and arrived there in good condition, selling for a higher figure than those in Winnipeg.

Cherries that have been picked for ten days even though they have been under refrigeration will not stand up as well as freshly picked fruit. Ripening processes take place slowly under refrigeration and thus lower the vitality of the fruit. However, cherries will not perish immediately upon withdrawal from refrigeration and if they have not been under refrigeration for more than eight or ten days most varieties will stand up long enough for marketing. Upon first withdrawal from the refrigerator car there is a rapid condensation of moisture upon the surface of the fruit (not so heavy on the prairies as in the east on account of the low relative humidity of the air in the west). This gradually disappears, but the moisture has helped to germinate mold spores. During the day of unloading and distribution the cherries remain in good condition, without much sign of change. After twenty-four hours from the car, or on the following morning, the fruit will appear in as good condition, but upon careful examination will show discolored spots, especially where it has been bruised. After thirty-six hours the discolored spots begin to show decay, which begins to be serious after two days from the car, unless kept in cold storage.

Plum Precooling.

The precooling of plums has been very successful from the first. Shipments in 1915 were more active and gave more satisfaction than in 1914, since better care was given by the growers to the maturity and condition of the fruit. The greatest distances that precooled plums were shipped were to Prince Albert, Saskatchewan and Glasgow, Scotland.

Plums retain their flavor and texture under refrigeration better than any of our tender fruits, and during the past year fears of shippers and the trade relative to the keeping quality of precooled plums have been alleged. Our experimental tests with plum varieties have been made to determine which varieties are suitable for long distance shipments after precooling. The following have proven most satisfactory: Bradshaw, Monarch, Grand Duke, Reine Claude, Damson, Abundance and Burbank.

Much difficulty has been experienced in shipping tomatoes to the Western Provinces, due largely to a lack of tomato shipping information and standards. Thus far precooling has not helped to any extent, since when picked firm enough for ordinary shipments the tomatoes would not have color enough for a precooled shipment. During 1914 one shipment of over-ripe stock was precooled and met with bad results. The cause of the loss was attributed to precooling. Demonstrations in 1915 have shown that it was not a question of precooling so much as one of maturity. For a precooled shipment the tomato must have color, but must still be firm enough to stand the necessary package pressure; the tomato must be free from cracks for best results.

Few Peach Shipments.

During 1915 peach shipments from Ontario to the western Provinces were very light. A greater tonnage of cherries was

Merryweather's Roses

Nurseries: SOUTHWELL ENGLAND

Send for list of collections to be delivered after April 15th, 1916, in time for Spring planting.
15 Best Hybrid Perpetuals for $3.00. 18 Best Hybrid Teas for $5.50. 12 Best Tea and Noisette Scented for $3.75.
12 Best Decoration Hybrid Tea for $3.75.
12 Best Roses for Table Decoration, $3.75.

M. A. BRUSH
SOLE AGENT FOR DOMINION OF CANADA
20 WELLINGTON ST. WEST
TORONTO, ONT.

Kelly's TREES

Guaranteed to "MAKE GOOD"

That means a lot to every buyer—guaranteed Sturdy, Healthy and true to name by a firm that has been growing trees right for 32 years—Apple, Pear, Peach, Plum, Cherry and Quince Trees, also Small Fruits and Ornamental Stock.

Direct to You at Grower's Prices

Quality before price is our motto, but our personal supervision of all trees from our nurseries to you, together with up-to-date facilities, enables us to sell Kelly Trees at low prices.

Our catalog tells all about our trees and prices. It is our only salesman, and you can order from the catalog just as well as if you visited us here in Dansville—Why not do both?

Write for catalog to-day—It'a worth while.

KELLY BROS., Wholesale Nurseries
148 Main Street, Dansville, N. Y.
You'll never regret planting Kelly Trees.

Too Much Mustard

It costs but 80c an acre to kill wild mustard when you use a Spramotor. If you spray for four years you will be able to pull all that comes up the fifth year. The mustard plants will be killed without in any way injuring the grain.

SPRAMOTOR

is made in many styles and sizes, from the largest horse and wagon outfit to the small portable Knapsack Sprayer, at prices from $6 up to $400. Over 20 valuable patented features obtainable in no other machine are embodied in the Spramotor. Made in Canada. No duty to pay.

Write for booklet of crop diseases—free.

Spramotor Works, 2709 King St., Toronto, Can.

precooled for western shipment than of peaches. The small western movements were due to fairly good local demands in the early part of the season, a late crop in Ontario and low prices in the west at the height of the marketing season. Low prices in the west were due to (a) a large consumption of California, Washington and British Columbia peaches before the Ontario shipping season had started, and (b) the lower cost of Washington and British Columbia fruit.

From a physical standpoint the precooled peach shipments were very successful. A shipment of Early Crawfords was two weeks under refrigeration and arrived in Winnipeg in good condition. A successful shipment of Elbertas was made to Glasgow. The farthest western shipment was to Prince Albert, Saskatchewan.

Tests with the maturity of peaches for precooled shipments show that a peach must not be green at the time of picking, but must be picked before showing any indications of softening as ripe peaches become mealy, lose flavor and are practically worthless when held for any length of time under refrigeration. Tests have shown that such varieties as Belle of Georgia, Yellow St. John, Early Crawford and Elberta, if properly picked and packed may be precooled and shipped to nearly any part of the Dominion.

Extension of Markets.

It has been shown that by precooling the better varieties of our tender fruits, not including berries, they may be shipped to remote parts of the Dominion without decay or waste. With the exception of sour cherries, the western shipments of which increased some 900 per cent in 1915 over those in 1914, the surplus of Ontario's fruits has not felt the influence that precooling has on the extension of markets. The reasons for this are obvious.

In the past the Ontario grower has been marketing a high priced product when compared with prices received in other districts in North America. Abnormally high land values and a very great increase in production have followed. Before the increase in production was felt cheaper fruits from the United States came across the border to be used in Canadian canning factories and to fill up the outlying markets in the Canadian prairies. The importation of fruit for these markets became an established trade and one that is hard to break off, so that during 1913, the year when tons of tender fruits rotted on the ground in Ontario for want of markets, and when calamity first stared the Niagara District fruit grower in the face, the Dominion of Canada imported from the United States 12,149,207 pounds of peaches, 6,197,700 pounds of plums, 6,026,691 pounds of grapes, and 11,054,228 pounds of pears, apricots, quinces and nectarines—or an equivalent of 1,767 carloads of tender fruits such as might have been grown at home. The importation of tender fruits from the United States has made a steady increase, and to-day is greater than it ever has been.

Our Fruit Commissioner's reports indicate that a large proportion of these imp[illegible]n go into our Prairie markets. For three weeks during the peach rush of the past season arrivals in Winnipeg ran as follows: First week, imported 30 cars, Ontario 13 cars, British Columbia 10 cars; second week, imported 22 cars, Ontario 10 cars, British Columbia 16 cars; third week, imported 25 cars, Ontario 10 cars, British Columbia 13 cars. Points further west have been consuming imported fruit at a rate to make ratios even more striking. Without doubt we have let markets slip out of our

This Year Grow Bigger Crops

MAKE up your mind that you will make each acre yield a bumper crop this year. Fertilize more thoroughly than you have ever done before.

Harab-Davies FERTILIZERS

are strictly high-grade. They have proved their worth and are recommended by progressive Canadian farmers from the Atlantic to the Pacific. They are thoroughly mixed, well-balanced, complete in every way. Following are the principal lines for 1916:

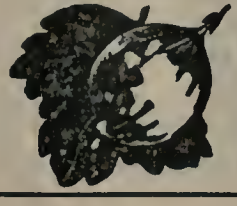
Guaranteed Analysis

Ammonia.	Available Phos. Acid.	Potash.	Ammonia.	Available Phos. Acid.	Potash.
2	10	0	3	10	1
3	10	0	4	9	1
4	10	0	0	10	2
5	12	0	2	9	2
0	12	1	3	7	2
1	12	1	1	8	3
2	10	1	2	7	3

Our 1916 Fertilizer folder contains complete particulars about Harab-Davies Fertilizers. Write for it.

The Ontario Fertilizers, Limited

West Toronto, Ontario



SMALL FRUIT PLANTS.
GOOSEBERRIES—Josselyn, Red Jacket, Downing, Pearl, Houghton. CURRANTS—Perfection, Ruby, Cherry, White Grape, Lee's Profile, Champion, Black Naples, Black Victoria, Boskoop Giant. RASPBERRIES—Herbert, Plum Farmer, St. Regis, Cuthbert, Marlboro, Golden Queen, Brinckle's Orange. GARDEN ROOTS, Strawberry Plants, Rhubarb. Write for Catalogue.
WM. FLEMING, Nurseryman, 496-4th Ave. W., OWEN SOUND, ONT.

Spray Your Crops
KANT-KLOG SPRAYER
9 sizes of sprays from one nozzle. Starts or stops instantly—saves solution and work. *Send for catalog.* Agents wanted.
Rochester Spray Pump Co.
195 Broadway Rochester, N. Y.

Northern Grown Apple Trees

$18.00 per hundred.
C.O.D.
Albert Nurseries, Albert, New Brunswick

SANDER & SONS
ST. ALBANS, ENGLAND
ORCHID GROWERS. The Finest Stock in the World
Catalogue on Application

FOR SALE
Everything from an apple tree to a strawberry plant—shade, ornamental and evergreen trees, ornamental shrubs and vines, roses, hardy flowering plants, bulbs, asparagus—guaranteed stock at reasonable prices. Catalogue Free. Silver black foxes, fishers, mink.
DOWNHAM BROS., Box E, Strathroy, Ont.

Strawberry Plants

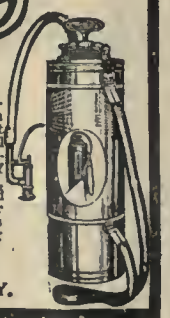
Stocky, well rooted plants. Carefully and securely packed for shipment by mail or express. Free catalogue and price list.

S. H. RITTENHOUSE
Jordan Harbor, - Ontario

SPRAY!
Get the FREE Spraying Guide

Bigger Crops! Better Quality
It will pay you *big* to spray the Brown's Auto Spray way this year; then you can be *sure* of *thorough* spraying. And *then* you can be sure of more, finer fruits, vegetables, field crops, flowers. 350,000 users — farmers, orchardists, gardeners, U. S. Experiment Stations, recommend to you

BROWN'S Auto Spray



—in all their 40 styles, hand and power. They especially recommend Style No. 1—shown here. Capacity, 4 gallons, just right for 5 acres field crops or 1 acre trees. Fitted with Auto-Pop nozzle. Throws all kinds of sprays. Wonderfully fast, thorough work. See it—and entire line—at your dealer's. Or write us for low prices. Free catalog and Free Spraying Guide.
E. C. Brown Co.
862 Maple St., Rochester, N.Y.

hands large enough to consume more tender fruits than Ontario is producing to-day, and the reason for this has been the extraordinary prices we have received in Ontario and Quebec in the good old days.

The Ontario peach is not largely used in the Prairie Provinces owing to the heavy purchases of Washington Elbertas by the wholesale trade early in the season. The trade prefers to purchase Washington Elbertas over Ontario because of their earlier season, their dependable packing, and formerly because of their lower cost. Because of the past failures in shipping it is now difficult to make f.o.b. sales of Ontario peaches to the western trade, and it is going to be very difficult to capture even a small part of the peach trade from the United States.

The only way that we can interest the western trade is to show them that they can secure a better article for less money in Ontario than in the state of Washington. By precooling, proper packing and good salesmanship, this can be done.

In the past the Ontario shipper has demanded high prices in the west to meet the risk of long distance shipments. In the future he will have to wipe out this risk by pre-cooling, and thus sell at a price that will come under the lowest price his competitor can make. At normal times the minimum that Wenatchee or Yakima peaches can be laid down in Winnipeg or Brandon is 75c per box. Deducting freight, icing and pre-cooling charges, and we have 58c at the Ontario shipping point. Deduct packing and selling charges and 37c is left to the grower for 20 pounds of peaches. In order to compete with the Washington grower the Ontario grower must grow his peaches for 1½c per pound.

By eliminating the risks of long distance shipments through pre-cooling, and lowering the cost of the fruit to the consumer, a large increase in consumption will result. One shipment of pre-cooled cherries was sold in Winnipeg by the T. Eaton Co. for 50c per 6-qt. basket. So eager were the Winnipeg housekeepers to secure fancy cherries at so reasonable a price that the entire carload of 2,333 baskets were sold in 30 minutes.

One shipper has made the statement that by systematic salesmanship and by making pre-cooled shipments, the entire Ontario cherry and plum crops could be marketed in the Prairie Provinces with greater net returns than are now being received with the added markets of Ontario, Quebec and the Maritime Provinces.

In 1901 the population of the three provinces to the west was 419,512. In 1911 this had increased to 1,322,709. Is it not safe to say that by 1921, only five years hence, this population will reach 2,500,000? By that time are our importations of tender fruits from the United States going to increase from 1,767 cars to 2,500 cars, or are the growers of Canada going to extend their markets to absorb the increased demand for fruit? By pre-cooling we can deliver the goods to these remote markets, and it only remains for the growers to decide how much of the trade they wish to supply, or how much they wish to give to the United States.

Shipping Immature Fruit *

F. Carpenter

ONE of the main aims of fruit growers has been, and is, to increase the consumption of fruit and enlarge our

*Extract from an address delivered at the recent Annual Convention of the Ontario Fruit Growers' Association.

Carters Tested Seeds Inc.

Write for our 1916 Catalogue of Garden, Lawn, and Farm Seeds. Prices substantially reduced. Stocks as good as ever.

Dept. A. 133 King St. East
TORONTO, ONT.

Clean up that stony section of the farm with a Bissell Steel Stone Boat. Built of stiff steel with railing around edges; steel runners. Sizes 2, 2½, and 3 ft. wide. Different styles for all kinds of farm and stable work. Write Dept. N. for folder and prices.
T. E. Bissell Co., Limited, Elora, Ontario.
BISSELL STEEL STONE BOAT
See advt. also on page VIII.

We have a large stock of all size
FLOWER POTS
FERN OR BULB PANS
¾ AZALEA POTS and Rimless Pans
Orders Filled Promptly. Send for Prices.

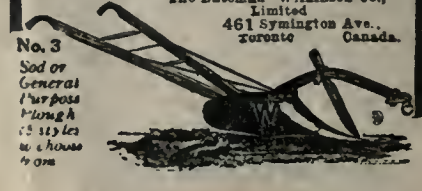
THE FOSTER POTTERY CO., Ltd.
HAMILTON, ONT.

FRUIT MACHINERY CO.
INGERSOLL, ONT.

Manufacturers of the Ontario Power Sprayer Model 2-B, the handiest of them all. Engine fills the tank. Also a complete line of Apple Evaporating Machinery and power evaporator equipment. Our complete power systems for evaporating as we install them are practical, sanitary and labor saving.

Write for free illustrated catalogue on spraying and evaporating.

TRADE MARK
Ploughs—Wilkinson
REGISTERED
U.S.S. Soft Centre Steel Moldboards, highly tempered and guaranteed to clean in any soil. Steel beams, steel landsides and high carbon steel coulter. Clevises can be used either stiff or swing. Each plough is fitted especially with its own pair of handles—rock elm, long and heavy and thoroughly braced. The long body makes it a very steady running plough. Shares of all widths—specials for stony or clay land. The plough showo turns a beautiful furrow, with minimum draft and narrow furrow at finish. Ask for catalogue.
The Bateman-Wilkinson Co., Limited
461 Symington Ave., Toronto Canada.



market, and, by so doing to keep the demand equal to and, better, sufficiently ahead of the supply to regulate prices so as to bring profitable returns to the grower. To further this a large amount of money and much time is being spent by the government co-operative associations, dealers and individual growers. Added to this the fruit grower has been assisted through the medium of lectures, demonstrations, etcetra, to grow a class of fruit at the least cost that will meet the demands and requirements of the consumer. The transportation companies have been, and are being urged to give more rapid and better service. The fruit inspectors are trying to regulate the pack so as to give the consumers an honestly packed package. Practicaliy everything we are attempting to accomplish is favoring a larger market and an increased consumption. The question naturally arises, are we doing all we can to increase consumption? I say, emphatically, NO, for until such time, especially for the tender fruit industry, as the shipping of immature fruit is either prohibited or regulated, we cannot expect to obtain the largest consumption of fruit.

Most growers do not appreciate the amount of damage done to our markets through the shipping of immature fruit. The grower in his own case when he desires fruit during the fruit season for his own consumption goes to the tree or vine and selects a fruit that he knows will satisfy his taste. He seldom does this indiscriminateiy, for if he did he might obtain one such as the consumer frequently gets, which is immature. When he attempts to eat it one bite is most likely sufficient. The fruit does not appeal to his taste and he has more consideration for the subsequent possible condition of his internal organs than to attempt to eat it. Even in view of the saving practices of this time of war the fruit in this case is most likely wasted, yet much fruit reaches the consumer in practically the same condition, and we expect him to consume it. What is the result? If it is to be used as fresh fruit, it will last a long time, and, if for canning purposes, it cannot have the flavor and will require more sugar than ordinarily used to make it palatable. It appears as if some growers were in league with the sugar man.

What is the consumer's position. In most cases he is not and never will be competent to judge as to the maturity of the fruit from exterior appearances. Possibly he does not know where the individual basket came from, other than that it is Ontario fruit, and as a result hurls his high explosives on the Ontario fruit growers as a body, tells his friends and neighbors of his experience, and, after the bad flavor

Strawberry Plants that Grow

Selected plants. All standard varieties $3.50 to $6.00 per 1,000. Send for list.

Ontario Nursery Co.

WELLINGTON, ONTARIO.

ST. REGIS EVERBEARING

are the first raspberries to ripen and they continue to bear until the ground freezes in the fall. Plants $1.00 per doz., $3.00 per hundred, $25.00 per thousand.

EDWARD LOWDEN

Hamilton, - - - - Ontario

MALLORY'S Strawberry Plants

give satisfaction enjoyment profit

Dunlap, Wonder, Williams, $4.00: Arnout, Uncle Jim, $5.00 per 1000. 200 plants, 50 each of four varieties for $1.00.

We also have good **Seed Corn.** *Send for Price List.*

N. E. MALLORY, :: Blenheim, Ontario

Order

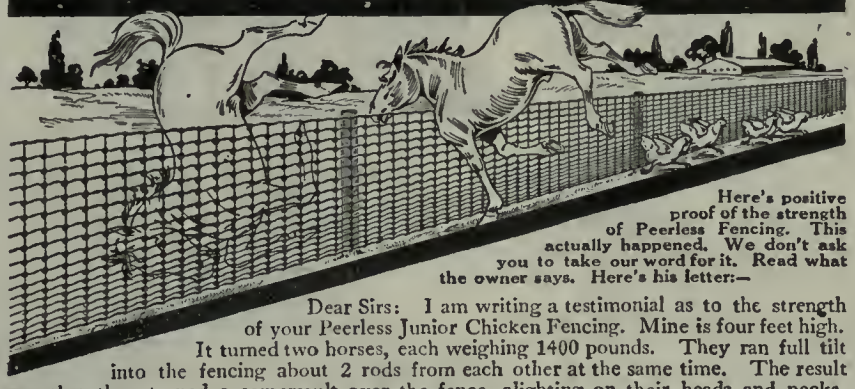
Canadian Grown Nursery Stock

direct from our Nurseries, and save all middlemen's profits. Write at once for our descriptive catalogue and special prices for fruit trees, small fruits, Roses, Shrubs, etc. Address

J. H. McCombs, Union Nurseries

Fonthill, Ontario

THIS ACTUALLY HAPPENED



Here's positive proof of the strength of Peerless Fencing. This actually happened. We don't ask you to take our word for it. Read what the owner says. Here's his letter:—

Dear Sirs: I am writing a testimonial as to the strength of your Peerless Junior Chicken Fencing. Mine is four feet high. It turned two horses, each weighing 1400 pounds. They ran full tilt into the fencing about 2 rods from each other at the same time. The result was that they turned a somersault over the fence, alighting on their heads and necks, scratching them up some, but the fence remained intact. Yours truly,

Joe Boothroyd, Surrey Center, B. C.

Think of it! A dead weight of nearly a ton and a half coming with violent force against our poultry fencing—not field fencing—and yet

Our PEERLESS Junior Poultry Fencing Held

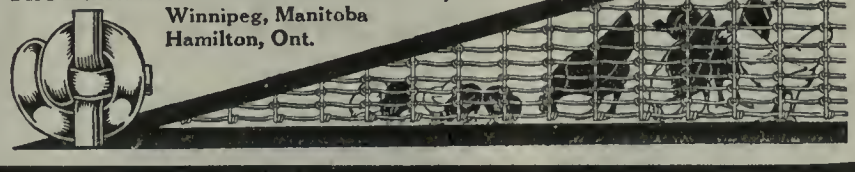
What greater test can you ask? We build it stronger than is necessary under ordinary circumstances. We build it of Open Hearth steel wire with all the impurities burned out and all the strength and toughness left in. Well galvanized. Every intersection is locked together with a Peerless Lock. Top and bottom wires of Peerless Poultry Fencing are heavy—extra strong. Consequently, fewer posts are required. Peerless fencing can't sag—can't get out of shape—can't help giving absolute satisfaction.

Catalog giving details on request. Describes our poultry, farm and ornamental fencing, also Peerless farm gates.

Agencies almost everywhere. Agents wanted in all unassigned territory.

The Banwell-Hoxie Wire Fence Co., Ltd.

Winnipeg, Manitoba
Hamilton, Ont.



Send to-day for catalogue.

SAVE 100%

You would not pay the bank 100% interest on money! Yet if you save a few dollars on the price of a cheaper Sprayer than the Bean, you will pay 100% annually on every dollar.

Delays are expensive in the spraying season and repairs cost real money. The Bean Sprayer is built for work—not to meet catch-penny competition; built for maximum efficiency—not minimum cost.

NO ANCIENT HISTORY

about the prizes the Bean has won. On straight merit in competition with the world, it was awarded the Gold Medal and Grand Prize at the Panama Pacific Exposition in 1915. All sizes—Hand and Power.

NIAGARA BRAND SPRAY CO., Burlington, Ontario

EVERYTHING FOR SPRAYING { Soluble Sulphur, Lime Sulphur, Arsenate of Lead, Dust Sprays and Dusters, and Accessories }

Planet Jr. Hand Cultivators

The garden tools for big results

They are saving time, lightening labor, and producing better crops for over two million farmers and gardeners. Planet Jr tools last a life-time. Fully guaranteed. **72-page Catalog, free!**

Describes over 70 tools including 12 entirely new ones, and improvements to our Seeders, Wheel-Hoes, Horse Hoes, Harrows, and Corn, Potato, Orchard, and Beet Riding-Cultivators. **Write for it to our nearest Agency.**

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No. 4 Planet Jr Combined Hill and Drill Seeder, Wheel-Hoe, Cultivator and Plow pays for itself in a single season in the family garden as well as in larger acreage. Sows all garden seeds (in drills or hills), plows, opens furrows and covers them, hoes and cultivates easily and thoroughly all through the season.

No. 11 Planet Jr Combined Double and Single Wheel-Hoe, Cultivator, Plow and Rake. Straddles crops till 20 inches high, then works between. The plows open furrows and cover them. The cultivator teeth work deep or shallow. The hoes are wonderful weed-killers. The rakes do fine cultivation and gather up trash. Unbreakable steel frame. Strong high steel wheels and specially hardened steels—new this year. The greatest hand-cultivating tool in the world.

No. 11

We make 32 styles of seed-drills and wheel-hoes—various prices.

SKINNER SYSTEM OF IRRIGATION

Control complete. Prevents drought losses. Reduces labor bills. Increases profit. Special Portable Line for $11.75. Send for new Bulletin.

The Skinner Irrigation Co.
217 Water Street Troy, Ohio.

NEW AND RARE SEEDS

Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalogue free.

Perry's Hardy Plant Farm
ENFIELD, MIDDLESEX, ENG.

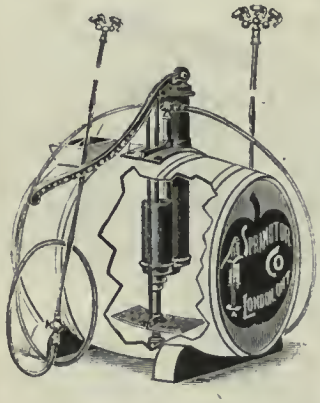
CENTRAL NURSERIES

For reliable Apple, Pear, Plum, Cherry, Peach and Ornamental Trees, Shrubs, Roses, Grape Vines, Berry Plants, Evergreens, Hedges, etc.—good ones, too.

Also Seed Potatoes.

We ship direct to customers. Our new price catalogue will interest you. Note our offers—they are dependable and O. K.—35 years at it. No agents for us.
Early Six Weeks' Seed Potatoes for sale.

A. G. HULL & SON, St. Catharines, Ontario



Insure your crops with a Spramotor

It isn't a SPRAMOTOR unless we made it

You find it good business to insure your life, your health, your home, then why not insure your crops upon which your livelihood depends? A few minutes' work with a Spramotor at suitable intervals will rid your crops of fungus diseases, and assure their arriving at maturity in that hard, healthful condition that secures first-grade prices. We have Spramotors adapted for every kind of spraying in every part of the world. Let us quote you prices and terms to meet your own special needs. Meanwhile write for a copy of our booklet which describes the various styles of Spramotors and gives valuable information about the treatment of crop diseases. Made in Canada. No duty to pay.

Spramotor Works, 2708 King Street, London, Canada

coincident with his attempt of consuming this fruit has passed away, and he begins to feel fruit hungry again, what happens? He is cautious in buying Ontario fruit, and if a banana or orange will satisfy his appetite as well, will likely spend more money to assist in building up the fruit industry of our competitors, and at the same time take pleasure in knocking ours. On the other hand, if he is fortunate enough to secure a basket of mature fruit, it does not last long. He possibly feels more physically fit after using it and in a short time will want it replaced, and as a consequence, uses many times the quantity of fruit than when deceived occasionally as mentioned. Is this not a fair comparison? I could cite you instances to prove it, if necessary, taken from consuming centres close to the point of production, where the distance from market could not be made use of as an excuse for the sale of immature fruit.

The 1916 Outlook for Apples

As the war develops, the outlook for the sale of the 1916 crop of apples does not appear to improve. Referring to this situation Mr. Elmer Lick, of Oshawa, President of the Ontario Cooperative Apple Growers' Association, is quoted in a recent issue of The Globe, as follows:

"The most serious feature," said Mr. Lick, "is that we shall find our export trade wholly cut off for the year. Even if the seas are kept open, and even if apples are accepted for shipment, the delay in carrying the fruit from shipping station to place of consumption, in my judgment, puts an export trade out of the question. Some apples which our association sent to Manchester last season were a month in reaching their destination. It is not likely that record can be bettered this year, and for every four or five days apples are on the way, in excess of two weeks, you may write off a shilling a barrel in the selling price. The loss by delay and heavy freight rates combined are a fatal handicap on European shipments.

"This means that we shall be confined to the home market, and the home market is not big enough to consume the entire home product—at high prices. If, however, growers are prepared to advertise their fruit, and to accept the prices ruling a year ago, there is no doubt in my mind that the home market can absorb three times what it is absorbing this year.

Capture the Western Market.

"Our first duty is to plan to get a hold on the western trade. We are going to be faced there by stiff competition from British Columbia and Oregon. But we have one strong factor in our favor—the predisposition of Ontario people in the west in favor of the Ontario apples. There is hope, too, as an outcome of negotiations now under way, that cooperative apple-growers in the

The Williams Strawberry

This famous strawberry still maintains its lead over all others in this district as a commercial berry. We have a fine stock of plants for spring setting, and can quote favorable rates on large or small orders. Satisfaction guaranteed. Send for circular.

W. H. BUNTING
The Carleton Fruit Farm, St. Catharines, Ont.

east may be able to sell direct to cooperative grain-growers in the west at a total cost of twenty-five cents per barrel for the agencies doing the handling.

"No matter what is done, however, we cannot look for high prices; but even if we get only 50 cents a barrel for fruit on the trees this year we shall not do so badly if, as a result of lower prices this season, we can develop a larger consumptive market in the years to come. Most of our apple-growers are mixed farmers, and this is where we have an advantage over the specialized fruit-growers of British Columbia and Oregon. We can stand a year of adversity as they cannot. We can live under conditions that will put them out of business. Still it will be necessary, even in our case, to reduce our expenditures to the minimum. Where an orchard is pretty well clear of bark louse I would be inclined to omit the first spraying, the most expensive of the lot. On the other hand, if an orchard has been long in sod I would cultivate it well this year with a view of bringing it into full production next season.

"I can see nothing else for it but fairly low prices this season, particularly for the poorer varieties. It may be, however, as in other seasons, that as a result of low prices in the early part, consumption may run away beyond expectations, and that towards the close of the season there may be scarcity and comparatively high prices in consequence."

How to Prevent Co-operation

If the farmers in your neighborhood want to co-operate in the shipping of their produce, never ship with them, but immediately notify the largest speculators what is going on, so that they may buy your produce at a little better price and enough of your neighbor's stock to make cooperative shipping impossible. By doing this you will be doing your community a good turn, because the speculator is usually one of your citizens, and you must assist him in building up his business. Anyway, the extra money that your neighbors would get by cooperative shipping might cause them some embarrassment.

If this plan does not commend itself to you, then agree to ship with your neighbors; but at the last moment sell to the old-time speculator for a little more money than you think you will get cooperatively, and in that way prove to the community that cooperation is all a humbug, and that it pays well to be a traitor.

If the cooperative organization happens to sustain some loss on one of their shipments, due to unusual circumstances or conditions, even if absolutely unavoidable, get all the information possible and make it your special business to see everyone you can and tell them all you can about it.

In this connection very telling work can be done by careful exaggeration, double or treble the quantity of goods concerned, paint it very black, make it very much worse than it actually is, because the fact that there may be a little truth in it will enable you to carry that class of campaign a very long way successfully. Pretend to sympathize with the cooperators and pretend that you could have handled the business better; that will make them dissatisfied.

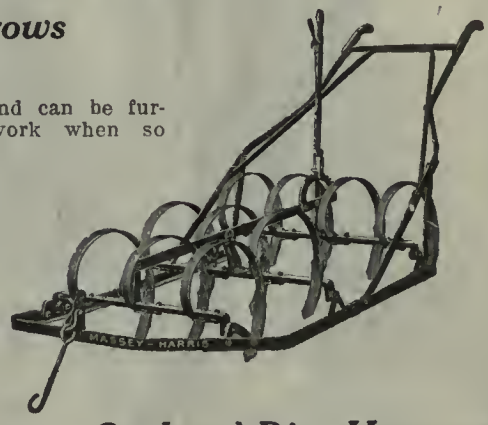
Incidentally you should be careful not to mention that you have yourself met with much worse luck on various occasions in the past. This method of procedure has much to recommend it. Your neighbors will consider you very much interested in their welfare, and therefore a real good fellow.

Implements for Orchard and Vineyard

Spring Tooth Harrows

10, 15, or 17 Teeth

The 10-Tooth size is in one Section and can be furnished with handles for vineyard work when so ordered.



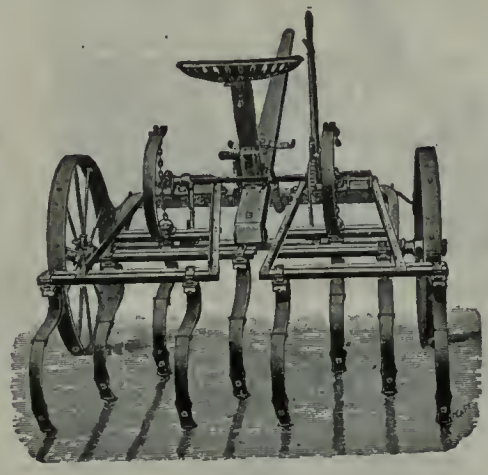
Spraying Outfits

Small outfits on skids—large outfits on wheels.

Hand and Power Spraying Equipment of all kinds.

Vineyard Plows

Both Walking and Riding Plows especially built for orchard and vineyard work.



Orchard Disc Harrows

REVERSIBLE

To throw the dirt to or from the trees or vines.

ADJUSTABLE

Gangs can be adjusted as required. Extension can be furnished for working under branches.

Cultivators

A great variety—for cultivating small fruit — for vineyards — for orchards.

Grape and Berry Hoes etc.

Toronto
Montreal
Moncton
Winnipeg
Regina

Massey - Harris Co., Limited

Saskatoon
Yorkton
Swift Current
Calgary
Edmonton

Practical Gardening Tools

TOOLS like these will do all of the necessary work (except plowing and harrowing) economically, whether for home, farm or market gardens. You can plant certain crops close and straight, and work them close and safely, with wheel hoes. You save ground, save heavy investment for tools at the start and yet do the best kind of work with profitable results.

IRON AGE *Hand Seed Drills and Wheel Hoes*

Will sow, cultivate, ridge, furrow, etc. better than you can with any old fashioned tools and ten times quicker. Pushed ahead a step at a time, these tools can be worked by women, or grown boys or girls. We show here a few only but we make 38 styles and combinations from which to choose. Prices, $3.00 to $14.50. There are also many attachments for special work.

Ask your dealer to show them and write us for booklet "Gardening With Modern Tools." Also, for horse hoes, harrows and cultivators, sprayers, etc.

The Bateman-Wilkinson Co., L't'd 462 Symington Ave. Toronto, Ontario.

Fire Blight Destroys Thousands of Trees

FIRE BLIGHT OF THE APPLE
IS SPREAD BY APHIS

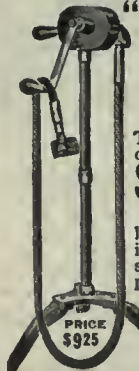
APHIS CHECKS GROWTH OF TREES
APHIS CAUSES LEAVES TO CURL
APHIS DEFORMS FRUIT

DESTROY APHIS WITH
"BLACK LEAF 40"

Guaranteed 40% Nicotine

Your dealer will furnish you this effective insecticide in concentrated form—200 gallons of spray from the 2-lb. can costs $2.50—1,000 gallons from the 10-lb. can costs $10.75. If he will not supply you we will send it to you, express prepaid, upon receipt of price. Write for Free Bulletins to the address below.

"BLACK LEAF 40"
40% Nicotine
The KENTUCKY TOBACCO PRODUCT CO.
INCORPORATED
LOUISVILLE, KENTUCKY.



"The Best Horse Clipping Machine"—

That is what customers in every country say of the

Stewart Ball-Bearing Machine

It turns easiest, clips fastest and endures the longest. Its file hard cut steel gears running in oil will last a lifetime. It has feet of new style, easy running flexible shaft and the new patented Stewart cutting head, highest grade. Clip off the heavy winter coat from your horses before the spring work begins. They will look better, feel better and do better work. Get one of the Stewart Ball-Bearing Machines from your hardware, saddlery or implement merchant, at only $9.25.

Insist on a Stewart Machine, the only one that will give you good service. Write us if your merchant does not have it.

CHICAGO FLEXIBLE SHAFT CO.
E. 612 N. LA SALLE ST. CHICAGO, ILL.

The Poultry Yard

F. C. Elford, Experimental Farm, Ottawa

Grit and oyster shell should be in a hopper, to which the hens have access at all times. The grit may be the commercial product, or if you are situated so that you can get a supply of coarse sand or fine gravel in the fall, it will answer very well. Oyster shell is a convenient form of supplying the lime necessary, and the egg shells may be used for the same purpose, but should be broken up fine before they are fed so that the hen will not get into the habit of eating the eggs.

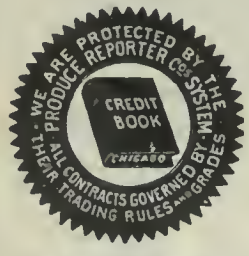
Sixty-five per cent. of the contents of the egg is water. This means that the hen must have plenty of drinking water. Open pans or pails are the best water vessels for winter, because they can be emptied and cleaned more readily than other vessels. Where it is almost impossible to have a fairly constant supply of water before the hens, see that there is a pan of fresh snow put in. In fact, fresh snow is sometimes used exclusively, though where the conditions are such that water can be supplied, it is better, and if the chill is taken off it, it will remain longer without freezing.

Mark the Laying Pullets.

By this time a pullet should be laying well. Those that are not should be marked or rather those that are laying should be marked so that only such will be kept another year. The pullet that does not lay in January will not likely pay for her keep and should be discarded in the spring. Those that are laying should be kept for breeders another year.

The best results cannot be obtained from a flock in which both hens and pullets run together. The pullets should be fed better than the hens at this time of the year, because it is from them that the fresh eggs should be coming. If the flock is of any size, and a division could be made in the house, so that the pullets will be kept by themselves, it would be worth while to do it.

Keep things clean. Though the winter is cold, don't think that there will be no mites. Watch out for them. Clean out the house frequently. Put in a nice clean litter occasionally, give the hens a comfortable, though it may be a cold house, and if you have a good strain of birds, fed judiciously, you ought to have been getting eggs since early in January.



We Solicit Your Consignments

Send for Shipping Stamp

Good Prices Always

For Your Fruit and Vegetables

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto Market, we have established branch warehouses with competent men in charge at Sudbury, North Bay, Cobalt, Cochrane and Porcupine. In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

Branch Warehouses: Sudbury, North Bay, Cobalt, Cochrane and Porcupine

H. PETERS

88 Front St. East, Toronto

References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies

Niagara Peninsula Fruit-Growers

F. G. H. Pattison, Winona.

The annual spring meeting of the Niagara Peninsula Fruit-Growers' Association opened at Grimsby on the afternoon of February 23rd. Mr. W. A. McCubbin, of St. Catharines, in an address on "Fruit Diseases of the Year," referred to the currant rust, a new disease which first appeared at Fonthill, Grimsby and St. Catharines, and has now spread as far as Oakville. It attacks the black currant chiefly, covering the undersides of the leaves with a conspicuous orange coating. It is very infectious, and spreads from patch to patch. The rust spores die in the fall on the currant, but are carried over in the white pine, which acts as a secondary rust, through the winter, to infect the currants again the following spring. It is likely to be much worse next season, although it seriously affected the crop in some places last season. Growers must get rid of the white pine or lose their currants. The Department is going to try and get rid of all affected white pine next season.

C. A. Pratt, Benton Harbor, Mich., gave a practical talk on peaches, their mode of growing, cultivating and marketing them in Michigan. The chief variety grown there is Elberta.

Dominion Fruit Commissioner D. Johnson gave a comprehensive view of the present condition of the fruit industry, with special reference to the advertising campaign conducted by the Dominion Fruit Branch last season.

Mr. W. T. Macoun, of the Central Experimental Farm, Ottawa, gave a short address on the leading principles of pruning, and Prof. Caesar, of the O.A.C., Guelph, gave a description of the newest sprays and how to control a number of the most important fungus diseases and insect pests.

Mr. David Allan, of Grimsby, while in favor of advertising, was of opinion that the dealers, etc., had put the prices of peaches down too low last year.

Mr. E. D. Reed, of Hamilton, reviewed the whole campaign of advertising last year in connection with the Niagara Peninsula Publicity Campaign. He read a number of letters from dealers and merchants in numerous towns and villages in Ontario, all testifying to the good results obtained by the advertising last season. Mr. Reed was of opinion that by the use of larger space in the newspapers of these towns that much greater results could be obtained next season with the expenditure of very little more money.

"Co-operation, or Problems of the Fruit Grower," was ably handled by Mr. S. J. T. Bush, of Rochester, N.Y. This was by far the best address of the day. It is published in part in this issue of The Canadian Horticulturist, by special request of the growers.

Dominion Instructor P. J. Carey spoke on "The Packing, Handling and Marketing of Basket Fruit." This address also will be published in The Canadian Horticulturist.

St. Catharines Meeting.

The convention was continued on February 24th in St. Catharines. There was a capital attendance. Prof. Caesar gave an address on "Injurious Insects, Diseases and Sprays," much the same as the one given at Grimsby.

Mr. W. T. Macoun followed, his subject being, "Apples, Best Varieties for Profit." He believed that the apple is going to be the most important fruit in Canada. Every grower in the Niagara District should have at least a small apple orchard. He considered that after the war Canada would have

Much of the success with a well-planned flower or vegetable garden depends upon the wise and careful selection of seeds. KEITH'S, by supplying only the highest quality seeds, has well earned the title

THE STANDARD FOR FIFTY YEARS

You will not be satisfied till you see a copy of our "Golden Jubilee Catalogue." It contains the full line of our "Quality" seeds.

Send a post card to-day

GEO. KEITH & SONS

120 King St. E. - - - Toronto, Ont.

Ott's Giant

THE new variety of strawberry reproduced above was cultivated from a chance seedling found by George Ott, of Arkona, Ont. The stems and leaves of this plant average 12 inches in length, and it contains 114 berries, the largest berry measuring 5¾ inches in circumference. It will yield one-third more per acre than any other variety which Mr. Ott has heretofore grown. The berry commands also a higher price in the market than the older varieties.

Ott's Giant is being put on the market for the second time this coming spring, 1916. For a full description of this wonderful new berry and price list, send a post card to George Ott, Arkona, Ont.

You Can Grow Prize Fruit by

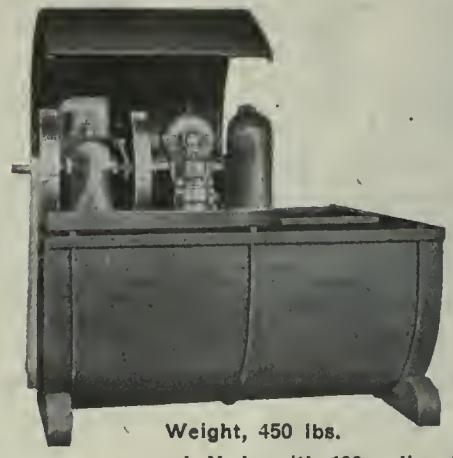
SPRAYING

your fruit trees with the right sprayer.

Over two hundred prize winners at last year's Fairs were growers who used our Sprayer last Spring, and who followed our directions about when and how to spray trees.

Your orchard can be made to produce three times its last year's yield, and the extra profit will add many dollars to your bank balance if you spray with the

I. X. L. JUNIOR Automatic Power Sprayer



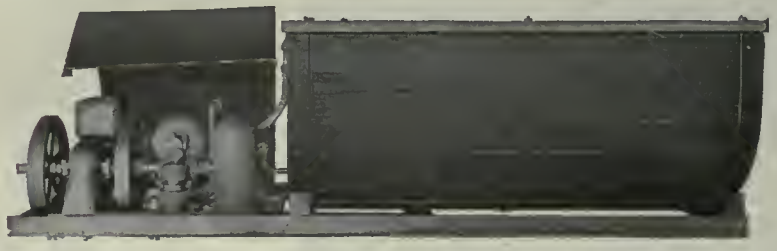
The I. X. L. Junior is made in two styles. It consists of a 3½ H.P. Engine, cypress tank, gear driven vertical cylinder pump, two 25 ft. leads of Hose, two visible spray nozzles, complete in all details.

Weight, 450 lbs.

I. X. L. with 100 gallon tank, $165.00
I. X. L. with 150 gallon tank, 170.00
I. X. L. with 200 gallon tank, 180.00

For rough or hilly orchards, common in some parts, the machine which best fills the requirements is our back-mounted

Pontiac Special
Automatic Power Sprayer



This machine is equipped with the same engine as the I.X.L., and is made with two size tanks.

150 Gallon Tank, 50 ft. Hose, 2 poles $200.00
200 Gallon Tank, 50 ft. Hose, 2 poles $210.00

We have prepared a valuable booklet entitled, "Prize Fruit and Vegetables from your Orchard and Garden," which is free to all farmers, fruit and vegetable growers. Use the coupon and send for your copy to-day.

Canadian Sprayer Co.
TRENTON, ONTARIO

Canadian Sprayer Co., Trenton, Ontario.
Dear Sirs:
Kindly send me your free book.
Name.....
P. O.....
Number of trees in orchard .....

exceptional chances to place her apples in the British and other colonial markets at an advantage. He gave a full account of what they were doing at Ottawa in the originating of new varieties. Seven hundred varieties had been tested there, and they had one hundred kinds that were very promising and likely to take the place of older kinds. He thought it would be profitable in the future to grow early-bearing varieties. By planting trees closer judiciously, a large amount of fruit could be obtained from a small piece of ground in a short time. He recommended the following varieties for the Niagara District: Red Astrachan, Duchess, Wealthy, Gravenstein, Blenheim, Hubbardson, McIntosh, Famense, Greening, Baldwin, Spy. He considered that good summer, fall and winter varieties of the highest quality would be very profitable in the Niagara District.

Mr. McCubbin repeated his address on "Fruit Diseases of the Year."

Mr. C. A. Pratt gave a capital address on "Strawberries." Large crops of good fruit can't be grown from poor plants. First-class plants and rich soil are necessary. Barnyard manure is the best manure for the strawberry. In planting make an opening in the soil, place the plant in it and make the soil firm against the roots. Plants must be cultivated well and carefully, and the crowns must not be covered with soil. They grow a propagating bed for plants every year. For varieties they grow Senator Dunlap for early, Gandy and Brandywine for late. Rotating the crops is the best way to control insect diseases. For the last two or three years they spray their strawberries with copper sulphate: first, just before the blossoming: next, between blossoming and picking. Chickweed is a hard proposition in a strawberry patch. They mulch their plants with marsh hay. It should be done early in the fall.

Mr. D. Johnson spoke on the marketing of fruit, and suggested that the growers should get together in the Niagara District and formulate a plan to market their fruit co-operatively. Last year they had come together and advertised Niagara District fruit, consequently Niagara peaches had been used where they had never been used before. "This year you expect again to have a large crop of peaches, therefore you should organize now, and be ready to handle the crop."

Prof. J. W. Crow, of Guelph, considered fruit growing too risky for a man to raise only one kind of fruit, and advocated an apple orchard in addition to other kinds of fruit for the Niagara District. He strongly urged fruit growers to raise a variety of fruits, as in this way a paying crop could be raised every year. He was of opinion that Northern Spys in Ontario are usually produced at a loss. Many fruit growers injure their business by asking too high a price for their fruit.

Mr. Bush repeated his excellent address as given at Grimsby.

Mr. E. D. Reed gave full data concerning the Publicity Association's advertising campaign of last season. The greatest benefit derived last year was when the Dominion Government helped by inserting large show advertisements in the daily newspapers.

An informal round-table talk was held in the evening, at which marketing and co-operation were the chief subjects discussed.

Mr. W. T. Macoun spoke the last day on "Small Fruits." He advised getting plants nearby if possible, as the loss was heavy when obtained from a distance. Currants needed severe pruning, good manuring with barnyard manure, and a soil with plenty of moisture. Mr. Macoun went fully into the

nethods of cultivating currants, gooseberies and raspberries.

Mr. C. A. Pratt spoke on "Grapes, Pears nd Cherries." In Michigan they suffered a ood deal from black rot, but had controlled t with Bordeaux Mixture. Concord was the nly grape grown there commercially. The rowing of pears in Michigan has been limted by reason of the blight, but along the ake shore they do not suffer much from hat. They cultivate till the beginning of une, and then let the weeds, etc., grow p. Keiffer and Bartlett are the chief varieties. In cherries they used to grow Governor Wood and other varieties, but now Black Tartarian is the only cherry being much planted. They are quite successful with Windsor and Montmorency in sour cherries. They ship their cherries in 16-quart crates.

Mr. Bush gave an admirable address on cold storage, which will he given in full in The Canadian Horticulturist.

Mr. Pratt spoke on peaches, and Mr. Creelman gave a thorough account of the pre-cooling of tender fruits and the best kinds of packages in shipping pre-cooled fruits, as evidenced by a series of experiments at the Grimsby Pre-Cooling Station.

The following resolution was adopted:

"Resolved that this Association endorse the work of the Niagara Peninsula Publicity Committee in advertising the tender fruits in 1915, and recommend that work along similar and improved lines be continued in 1916."

The Outlets for Low Grade Fruits*

P. E. Culverhouse, Experimental Station, Vineland, Ont.

The question has been asked: "What prospects have the tender fruit growers for disposing of more of their low grade fruit in the form of by-products?

In the past, grapes have gone partly to market and partly to the wine-maker Both outlets took all kinds and classes of the fruit. The wine-maker, however, used mostly the Concord. In 1915, grapes for wine-making were reduced hy two-thirds. Legislation and popular opinion is strongly reducing the amount of alcoholic beverages manufactured. The making of unfermented grape juice looks like the industry of the future. This industry will take only the best Concords. Therefore, we may classify grape production of the future in the following manner:

(1) Red varieties—Niagaras, Wordens, some Concords, and other varieties grown for market.

(2) Best Concords for grape juice.

(3) Culls of all varieties for jelly making.

This third class of grape is the only one of low grade nature. By removing it from the other two classes, Ontario grapes and Ontario grape juice will become more popular. The jelly and jam making business of Ontario is growing. Grape growers will be able to dispose of more and more of their small bunches of unevenly ripened fruit.

Peaches.

Low grade peaches consist of: (1) Undersized fruit; (2) overripe fruit of all sizes; (3) split peaches; (4) windfalls; (5) peaches with gum spots; (6) scabby peaches.

The most promising way to dispose of these peaches is to stop producing them. Seriously, no grower can afford to stop improving his organization for producing and handling his crop. Granted, however, the

*A paper read at the last annual meeting of the Ontario Fruit Growers' Association.

What Have You Done Since October?

Have the winter months been wasted as far as your flowers and vegetables are concerned? They have been busy months with all enthusiasts who own a greenhouse, and horticulture is a particularly delightful hobby when winter reigns outside.

Of course, much depends on the efficiency of your greenhouse—that is why we can count as our clients the big professional florists, whose whole income during one-half the year depends on flowers raised under glass.

We will build a house to suit everybody. Let us know your requirements, and write us for booklet B of greenhouses.

GLASS GARDEN BUILDERS, Limited

201 Church Street, TORONTO

Transportation Bldg., St. James St. Montreal

(Style "S"—Short bowed stay in lower half, exactly as shown.)

Beauty, Economy, Perfect Weave

These and complete satisfaction you get in Frost Improved Lawn Fence, because—

(1)—It is perfectly woven on the latest automatic power machine, the only one in Canada. The spacing is only 1-3/8 inches, and the fabric is tightly and uniformly woven throughout. Every stay stands straight.

(2)—The material is all our own make best quality heavily galvanized Frost Hard Steel Wire. Laterals are two No. 13 wires tightly cabled, with the deeply crimped No. 9 uprights firmly interlaced.

(3)—Our heavy zinc coating (galvanized) is more durable than paint (which quickly cracks and peels off) and enables us to sell our improved fence at lower prices than the hand-woven, painted fences.

FROST IMPROVED LAWN FENCE

can be erected on wooden or iron posts. It adds beauty and value to any private property or public buildings, church yards, etc. We make three different styles of fabric, and gates with filling to match as shown above.

Frost Angle Steel Picket Fence is widely used for Cemeteries, Manufacturing Plants, Public and Private Grounds, etc. Write us for two-color illustrated folder. 61

Frost Wire Fence Co., Ltd., - - Hamilton, Ont.

STRAWBERRY and all other small fruit plants **SEED POTATOES**

Our great new Strawberry "Grand Prize," the best Fall-Bearing kinds, and 50 others. Herbert, Eaton, St. Regis Everbearing and other best Raspberries, also Blackberry, Currant, Gooseberry and Grapes.
Splendid stock of Cobbler and Green Mountain Potatoes.

DESCRIPTIVE CATALOGUE FREE

H. L. McCONNELL & SON - - - Port Burwell, Ont

3 Grand Varieties--Good as Gold

Beans —Refuge Wax—Pods round, clear and transparent and of handsome appearance. Is tender, very productive, free from rust, and stands dry weather well. ¼ lb. 15c., 1 lb. 45c., 5 lbs. $2.00. Postpaid.

Corn —Golden Bantam—An early, hardy, productive variety, of finest quality and delicious flavor. It is a rich, cream yellow, deepening to orange-yellow when ripe. ¼ lb. 10c., 1 lb. 30c., 5 lbs., $1.40. Postpaid.

Peas —Bruce's Early Settler—A grand extra early wrinkled marrow variety. The pods are large, deep green, and filled with large peas, possessing the rich flavor and quality of the best late varieties. It attains a height of about 1½ feet and is very productive. ¼ lb. 15c., 1 lb. 40c., 5 lbs. $1.75. Postpaid.

If sent by Express at purchaser's expense, deduct 10c per pound.
BRUCE'S Seeds are the cheapest, because they are the best.

FREE Our handsomely illustrated 128-page catalogue of Vegetable, Farm and Flower Seeds, Plants, Bulbs, Poultry Supplies, Garden Implements, etc., for 1916. Send for it.

John A. Bruce & Co., Ltd., Hamilton, Ontario
Established Sixty-Six Years

greatest efficiency some of these low grade fruits are bound to appear.

Undersized, split and scabby peaches, if not too ripe, may be used in the canning factory for pie peaches. For this purpose they are sliced and canned in water. This product is cheap, but should dispose of a great deal of our peaches.

Overripe and gummy peaches and windfalls should be used for jam making. Peach jam is not very popular. It is not advertised sufficiently to be known by the public. We made some at Vineland last year, however, which was very good. Fairly large quantities were made in commercial jam factories. The question might well be asked: "Why couldn't a large quantity of peach jam be sold for army purposes?" It could be prepared cheaply, is very healthful, and anyone who tastes well made peach jam will agree that it is a splendid product.

The idea of evaporating our peaches is promising. If such an industry were established here many undersized peaches could very likely be used.

It may be pointed out that local canning factories and evaporators, if run properly and successfully, will not only accept much low grade fruit, but will prevent much of the waste due to overripeness. Because factories are nearby the grower can dispose of greater quantities with less labor. Therefore there will be less spoilage.

Manitoba

J. A. Neilson, Manitoba Agricultural College, Winnipeg.

The annual convention of the Manitoba Horticultural and Forestry Association was held in the Manitoba Agricultural College, February 17th and 18th. About sixty delegates were in attendance. The meetings were characterized by earnest attention, practical papers, and interesting discussions.

President J. B. Reynolds, of the Manitoba Agricultural College, gave an address on "The Farmer's Vegetable and Fruit Garden." He stated that a fruit and vegetable garden should be found on every farm home. A good garden has a three-fold value: 1, Its value to the family; 2 Its value as an education; and 3, As a recreation.

Miss Ethel M. Eadie, Professor of Household Science at the Manitoba Agricultural College, read a paper on "Vegetables as Human Food." Miss Eadie showed that vegetables exert a beneficial effect on the health of the human body through the action of the various salts which they contain. Some vegetables, such as beans, peas and lentils, contain more protein than meat, and are a cheaper food.

Mr. James Tribe, of Kildonan, discussed the "Storage of Vegetables"; Professor Churchill, the "Value of Drainage to a Market Gardener"; Mr. J. J. Ring, of Crystal City, the "Farmer's Kitchen Garden," and Messrs. S. E. Clarke, of Souris, and J. E. Boughen, of Dauphin, and George Harper, of Neepawa, gave brief addresses on various phases of horticulture. J. A. Neilson, of the Horticultural Department, gave a demonstration and short talk on the preparation and use of Bordeaux Mixture.

Miss Barbara Stratton, of Stonewall, read a paper on "The Pests of House Plants and How to Combat Them." Mrs. S. E. Clarke, Winnipeg, gave a paper on "The Raising of House Plants from Seeds," and Mr. R. M. Muckle, Provincial Apiarist, gave an illustrated lecture on "What Bees Do With Flowers."

Professor V. W. Jackson gave an inter-

esting lecture, illustrated by lantern slides, on "Spore Production in Plant Diseases." Mr. E. H. Strickland, officer in charge of the Entomological Laboratory at Lethbridge, Alberta, gave a full account of the work which he has been doing on "Cutworms and Their Control." Mr. Strickland presented some interesting matter on the life history of some of the injurious species of cutworms. In his experiments he found the poisoned bran mash a failure. He secured very good results by using the following preparation: 50 pounds shorts, 1 pound paris green, 1 gallon molasses and 2½ gallons water. Mix the shorts and the paris green together dry. Dissolve the molasses in the water and add it slowly to the shorts and paris green. Thoroughly mix, and when completed the material should be dry enough to crumble finely. Apply at the rate of 25 pounds to the acre. If the land is dry and the cutworms do not come to the surface, harrow the bait in. In control experiments this mixture has destroyed 75 per cent. to 80 per cent. of the cutworms.

Mr. Norman Ross, Superintendent of the Dominion Forestry Station at Indian Head, gave an interesting review of the work of the past year, and briefly outlined some of the work for the present year. Mr. Ross reported an increasing interest in the work of tree planting on the Prairies. Schoolground planting was being taken up by the Saskatchewan Government, and it is expected that a great increase in this work will follow as a result of careful supervision and up-to-date methods. Coniferous trees have proved to be better able to stand drouth than deciduous trees.

The United States Forestry Department had, during the past two years, made a careful study of the Canadian methods of forestration for a prairie country. It is an interesting tribute to the Canadian Forestry Department to notice that the American authorities have practically adopted in full the Canadian methods.

S. A. Bjornason gave an outline of the horticultural work at the Brandon Experimental Farm in 1915.

Mr. A. P. Stevenson, one of the successful pioneer horticulturists of Manitoba, gave an interesting paper on "Experiences in Horticulture in 1915." Mr. Stevenson has the largest and one of the best fruit plantations in Manitoba. In the face of unfavorable climatic conditions he was able to produce 150 barrels of standard and crab apples. The best bearing standard varieties of apples proved to be the Ostrekoff, Simbrisk and Hibernal, in the order named. Several varieties of the Russian Bush Morello Cherries came into bearing during the past season. Of these the Vladimir and the Shublanca proved to be the best. The Compass Cherry is one of the best hybrids tested. Sansota and Kaga were found fairly satisfactory. The Carrie Gooseberry, a seedling of the Houghton, produced a heavy crop of large-sized fruit which was superior to the mother plant. The Everbearing Strawberry was found to be quite satisfactory. A good yield of fine quality fruit was secured. The Agwam, a variety of Blackberry, has been found hardy enough to stand the winter in Manitoba. Two crops of this fine fruit have been produced. A variety of Red Raspberry Seedling No. 4, was secured from the Fruit-Breeding Station at Excelsior, Minn. This variety is one of the best of the seedling raspberries so far tested. The Herbert, a seedling variety, originated at Ottawa, was found quite satisfactory.

The convention was brought to a close on Friday evening by an illustrated lecture on "The Fight to Save the Forests," by Mr.

"It is such a saving in labor I must have a power outfit."

In his sixth order to us, Mr. J. C. Harris, of Ingersoll, Ont., says more for the Spramotor than our most enthusiastic advertisement. A man may buy a thing once and be dissatisfied, but when he comes back for additional purchases, there is only one conclusion that we can come to, and that is that article must be all right.

We never claimed more for the Spramotor than that it would do the work required of it effectively and economically, and in all things give satisfaction. And letters which we have received and are constantly receiving from farmers all over Canada, signify that our statements have been met with a service that is making staunch friends for the Spramotor wherever it is used. Over 100 Gold Medals and Special Awards to the credit of the Spramotor show that these expressions of confidence are merited. Suppose you write now while the matter is fresh in your mind for a copy of our booklet on crop diseases.

Spramotor
It isn't a SPRAMOTOR unless we made it

Made in Canada—No duty to pay.

Spramotor Works, 2707 King Street, London, Canada

Big Ben

—took first

prize in the alarm clock class at the San Francisco fair.

Big Ben was shown every day of the fair, almost ten months. He was judged on appearance, performance, pedigree. He carried off the Medal of Honor, the highest award on alarm clocks.

Big Ben is shown by all good dealers. Ask to have him put through his paces. In the United States $2.50. In Canada $3.00.

Western Clock Co.
La Salle, Illinois Makers of Westclox

NEW TOMATO
"ALACRITY"
Developed by experts at the Central Experimental Farm, Ottawa.

Earliest of all Red Tomatoes

ALACRITY produces a closer compact vine, set quite as freely with fine smooth tomatoes, which are usually ready to market ten days earlier than any other strain.
The entire crop can be gathered generally in about three weeks from the time the first fruit ripens.
ALACRITY is undoubtedly the very best earliest scarlet fruited tomato.

1916 FLOWER AND VEGETABLE SEED
Catal gue Free on Request

Dupuy & Ferguson, Seedsmen,
38 Jacques Cartier Square,
MONTREAL, - - QUEBEC

A Book That Will Help You

To make your home look worth while—and worth more.

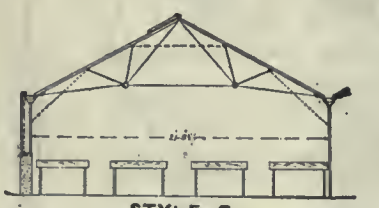
Lovers of Roses

will find many suggestions in its list of 115 hardy varieties. It also lists many varieties, new and old, of Shrubs, Vines, Herbaceous Perennials, Trees and Bedding Plants.

The Book Is Free

to readers of the Canadian Horticulturist. Send for it to-day.

JOHN CONNON CO. Limited
HAMILTON, ONTARIO



STYLE C

This is a New Model for 1915, the result of fifteen years' experience in Greenhouse construction for Canada.
Dotted lines show location of wind-ties that positively prevents vibration of the sash.
Supplied in widths up to 25 feet 2¼ inches from post to post.

KING CONSTRUCTION CO.,
40 Dovercourt Road - Toronto.

Robson Black, Secretary Canadian Forestry Association. Mr. Black emphasized the fact that our forest supplies are being rapidly depleted by fire and by lumbering operations. The timber requirements of the Canadian Pacific Railway alone were very great. This company uses in a single year 5,000,000 railway ties, 200,000 fence posts, 50,000 telegraph poles and 6,000,000 feet of lumber. During the past century Canada lost one half of its total forest wealth by fires. To offset the great loss caused by forest fires an efficient Federal and Provincial system of forest fire protection is urgently needed.

Niagara District Notes

By F. G. H. Pattison, Winona

On February 5th an important meeting of the members of the local co-operative association, prominent growers and dealers, was held for the purpose of considering further and better co-operation for the Niagara district. Messrs. F. C. Hart and J. B. Fairbairn, of the Markets Branch of the Provincial Department of Agriculture, represented the Department.

It was proposed to divide the Niagara fruit belt into three districts. No. 1 to take in the portion of the fruit belt between the eastern outskirts of Hamilton and the Sixteen-Mile Creek below Jordan. No. 2, from the Sixteen-Mile Creek to the Niagara River. No. 3, the district between Hamilton and Toronto, lying along the lake shore.

For District No. 1, J. R. Hastings, of Winona, presented a plan worked out by himself in conjunction with Messrs. Hart and Fairbairn. After a good deal of discussion a strong committee was appointed to draft a constitution and draw up a definite and clear-cut scheme to place before the fruit growers of the district.

On February 1st the Ontario Vegetable Growers' Association held their annual business meeting in Toronto, and elected officers for 1916, as follows: President, F. F. Reeves, Humber Bay; Vice-President, J. J. Davis, London; Second Vice-President, E. K. Purdy, Kingston; Secretary-Treasurer, J. Lockie Wilson, Toronto. The officers, with the addition of Thos. Delworth, of Weston, form the executive. The Association will hold field-crop competitions in early potatoes, celery, onions and potatoes, and special prizes will be given for the best kept garden of any vegetable grower, not less than three acres. The Province will be divided into four districts in each competition.

On February 15th a Vegetable Growers' conference was held at Burlington, both afternoon and evening, with the following speakers: J. A. Campbell, Leamington, "Growing of Onions for Profit"; J. McFarlane, Brantford, "Skinner Irrigation for the Vegetable Grower"; F. F. Reeves, Humber Bay, "Greenhouse Crops"; S. C. Johnston, Provincial Vegetable Specialist, gave an illustrated address on "Insects and Fungus Diseases Affecting the Vegetable Grower."

On February 16th another Vegetable Growers' conference was held at Bartonville, with Mr. S. C. Johnston in the chair. Mr. Johnston explained that the object of these vegetable conferences was the giving of practical information to vegetable growers by experienced vegetable growers from a different locality. More money could be made by growing vegetables of first-class quality on a limited scale than by growing a large area of moderate quality. Mr. Walter Cook gave a very interesting and practical talk on "Hotbeds." Mr. Thos. Delworth, of Weston, went thoroughly into the question of "Greenhouse Crops." In the

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See advt. also on page 76.

evening "Skinner Irrigation" was discussed, and Mr. S. C. Johnston gave an address on "Insects and Fungus Diseases," illustrated by limelight views.

On the evening of Thursday, February 17th, Mr. W. E. Saunders, of London, Ont., gave a splendid lecture in Hamilton on "Bird Life," to the members of the Hamilton Scientific Association. Mr. Saunders described the reasons and results of bird emigration, and urged the erection of bird shelters in different parts of the Province. In illustrating this novel and admirable lecture Mr. Saunders used stuffed birds, limelight views of birds and their habits, and also imitated with marvellous accuracy the different bird calls. Mr. Saunders advocated his hearers to take up the study of birds and to identify them by their calls rather than by their appearance.

At the Niagara-on-the-Lake branch of the Dominion Canners, Limited, the employees have been busy lately making up a large shipment of canned goods for Montreal and other places. At this factory there is still a considerable share of last year's pack to be disposed of.

The Vineland Canning Factory has changed ownership.

At a meeting of the shareholders of the Northern Veneer Company, held at the head office, Grimsby, Ont., it was decided to go into voluntary liquidation and McLeod, Tew & Co., of Hamilton, were appointed assignees. This company was capitalized at $200,000, and manufactured baskets and other supplies for fruit growers of the Niagara Peninsula. The head office was at Grimsby, with branches at Winona, Beamsville, Burlington and Copetown.

There is not likely to be much planting of new orchards or vineyards this spring. In consequence of this there will be a small movement of nursery stock, probably the smallest in some years.

The acreage planted to tomatoes is likely to be larger this season, as canning factory stocks are pretty well cleared out. It seems clear, however, that the canning factories are not going to pay more than 25 cents per bushel this year, and some contracts have already been made at that figure, in spite of the efforts of the Lincoln and Welland Vegetable Growers' Association to hold the growers together in demanding a better price. There is a probability that the price of baskets will go up before long. The present rates are $42 per thousand for 11-quart and $34 per thousand for 6-quart. The makers say they are losing money at those prices owing to the increase in the price of the raw material, especially bottoms.

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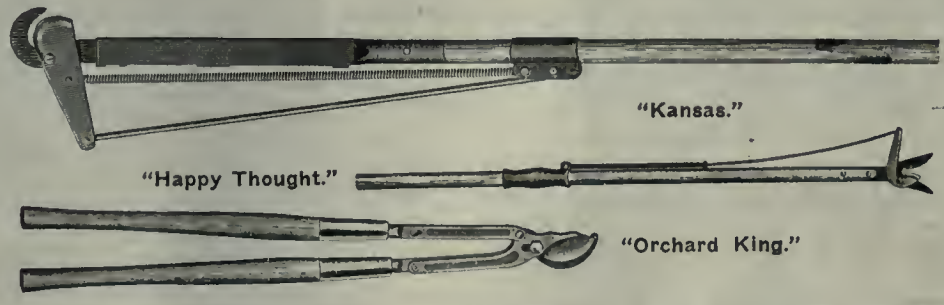

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Although apple prices have been high in the Valley right through the season, the growers are not in an optimistic frame of mind as to the future. More than any other fruit-producing section in Canada we depend for our returns on the English market. There in all normal times we have a steady demand and paying prices. The transportation charges are lower than for any of our competitors, and a farmer with a small orchard can ship direct as well as the largest operator. But the whole thing hangs on transportation, and now with few boats and a prospect of fewer, with freight rates steadily climbing, and no relief in sight until some time after the end of the war, the outlook seems anything but rosy

However, things are not always as bad as they seem, like the old farmer who said that he had had a great many troubles in his life, most of which had never happened. To date it is a fact, as pointed out by the President of the Fruit Growers' Association in his annual address, that the war has not caused a smaller amount of money to come into the Valley for apples the past two seasons. It would seem poor economy to neglect the orchard at this stage of the game. No one is setting more trees, however, and the nurserymen are living off the profits of years gone by.

The debate on Mixed Farming versus Fruit Growing at the recent fruit growers' meeting was more largely attended than any other session of the convention. All classes in the Valley seem to consider that the fruit grower is not doing his duty as his father did before him, in producing beef, butter and hogs, in addition to apples. No doubt the cause of all this interest in the farmer's business is the feeling that if more of these commodities were produced, prices would be easier and the consumer benefit. To the unprejudiced observer, the fact that so many in the Valley are giving more and more attention to orcharding should be prima facie evidence that that is the line where lies the greatest reward for their efforts.

The new movement in New York to sell fruit by auction has not been suffered to come into being without opposition. At the recent New York State Fruit Growers' Association meeting a strong fight was put up by a number of the large apple growers and buyers to discredit it but the Association stood by the scheme, and pledged apple shipments to auction markets. As that is the most representative fruit-growers' association in the State, this endorsement was very gratifying to auction supporters, and will probably result in a large auction plant being established at Rochester, which, it is claimed, will save millions to Western New York growers.—F. G. H. Pattison.

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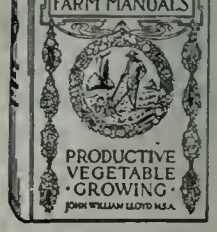

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Vol. XXXIX PETERBORO, APRIL, 1916 No. 4

Essentials to Success in Fruit Growing

Seth J. T. Bush, Morton, N.Y.

THE growing of fruit, when properly conducted, is a business which requires all the brains, all the patience, all the care and sometimes all the money a man has, to carry it on successfully. The old idea that it took a "smart" man to be a lawyer, a doctor, or a merchant, but that any fool could be a farmer, has at last been exploded, and in its place has come the realization that in the successful farmer and fruitgrower must be combined the shrewdness of the lawyer, the sympathetic insight of the physician, and the practical wisdom and foresight of the merchant and manufacturer.

To be a successful fruitgrower, a man must know how to prune his trees; how and when to spray them, and how to thin whenever that is necessary or advisable. He should know his soil and what it needs to properly nourish and sustain the trees and mature the fruit. He should know the relative value of different varieties; their bearing, carrying and keeping qualities. I would not recommend the raising of a great many varieties, and it is always important to plant only the varieties suited to your soil and climatic conditions. The man who raises any kind of fruit on a carlot basis has a distinct advantage over the man who, perhaps, raises more fruit but can not load solid cars of one variety. The question of fertilizer for our orchards is a vital one. The man who depends wholly on commercial fertilizers for his orchards, or any other part of his farm for that matter, is making a serious mistake. If I could get all the good barnyard manure and all the good cover crops I need, I would not buy a pound of commercial fertilizer, with the exception of nitrate of soda as a top-dressing for pastures, meadows, and wheat in the spring.

With the right kind of cover crop to plow under, and proper cultivation afterwards, you will need mighty little else, and you may have to eliminate the cover crop occasionally. I am not, however, advocating barnyard manure for peaches. A fruit grower should walk through his orchards at least once every week through the summer, and be on the lookout constantly for the various diseases and ills that the tree is heir to.

In the case of peaches, the "grubbing" of the trees is one of the most essential things, and should be done thoroughly at least once each year—in May or June. The "Grubs" must be removed or they will ruin the trees in

New Brunswick within a few years should rank up well as a fruit bearing province. The orchard here shown is that of R. W. Barker Burton, N.B. Many more orchards will shortly come into bearing.

The strawberry crop last year of Geo. Johnson, Peterboro, Ont. Are you planning to grow one like it this year?

short order. Every diseased peach tree should be pulled up and burned the moment it is discovered; don't try to save part of the tree which does not seem to be affected, as disease after it once appears, will spread rapidly, and the entire tree will usually be affected before the fruit can be harvested.

There ought to be a strict law, and a rigid enforcement of it, to protect the fruit grower from his careless neighbor. The man who will not properly look after these things is a menace to his neighborhood, and should be forced to do so or be severely punished by the state.

Exporting Peaches.

If this wretched European war ever ends, and the people over there have any money left with which to buy fruit, I believe that the Elberta peach can be exported with success, if picked at the proper time, pre-cooled and quickly delivered to the ship under proper refrigeration. The experiment has been tried by western growers, with not very satisfactory results, it is true, but the eastern orchards have several days advantage, particularly those within five hundred miles of the seaboard. The experiment, I understand, has also been tried by Canadian growers, under the supervision of the Canadian Department of Agriculture, with much better results.

The principal obstacle in the way of doing this successfully, is the absence of railroad tracks on the New York docks, which would permit cars to be switched direct to the side of the steamer, and a quick transfer of fruit to the steamer's refrigerators, also a lack of proper refrigerator space on most of the ocean liners.

Pre-cooling peaches for shipment to any market is an essential to the greatest success. The greatest losses sustained by growers have been due to improper refrigeration, and absolutely inexcusable transportation service furnished by the railroad companies. If cars are properly iced and cold, and the fruit is cold when loaded, it will carry three times as far, thereby widening the distribution, and arrive in first class condition, usually with but one reicing. We have our own ice plant at Morton, and ice our own cars, and try to have the cars iced from 24 to 48 hours before they are loaded, so that they will be absolutely cold—around 40 degrees—usually about 36, so that the peaches coming from the cold rooms where they have been held at 34 to 36 degrees for two to four days, will not undergo any decided change in temperature, and will not "eat up" all the ice in the bunkers before the car can reach the first icing station. Last season we shipped cars of peaches as far as Tampa, Florida, under these conditions, successfully.

What The West Has Done.

Most fruit growers are supposed to be in the business for profit, but a lot of them, like Rip Van Winkle, have been asleep for twenty years, and many, I fear, never will wake up. The whole world has heard of the Hood River Valley of Oregon, and the Wenatchee Valley of Washington. These people have been able to overcome a freight handicap of $1.51 per barrel (figured as three boxes) and a haul of three thousand miles, and sell their apples here in our midst, where the finest flavored apples in the world are grown, for three and four times what we receive for ours. Co-operation is the thing that has done it. Elimination of every needless expense, and a package that could be absolutely guaranteed.

It is much cheaper to operate one large, efficient, convenient packing plant in a community, than thirty or fifty individual plants, and it is absolutely the only way by which a standard, uniform pack can be obtained. There is no experiment about it; it has been thoroughly tried out and proven an unqualified success.

Selling Problem.

It is not a question any longer of how to grow good fruit, or how to increase the yield; it is a question of HOW TO SELL IT. The cost of production is increasing all the time, and unless we adopt a better system, which guarantees an honest, uniform pack, and keeps the "cull" out of the package altogether, at the same time securing each year better and wider distribution, prices will go down until we reach a point where any chance for a reasonable return on our investment will vanish.

The selling of fruit is a specialized industry, and should be handled by experts. We are really manufacturers—manufacturers of the world's food supply—but unlike all other manufacturers, we have been blundering along on the principle of every man for himself, and the Devil take the hindmost.

Imagine any other manufacturer going ahead an entire year in total blindness and ignorance of what his expenses were or what his product would bring! He does not do business that way—not much. Before he will turn a wheel he must know exactly what the cost of production will be, and the exact price his product will sell for. The tariff must be properly adjusted for the manufacturer; there must be "gentlemen's agreements," and secret trade combinations; every contract must contain a "strike clause" and a "war clause," and in all cases ONE SET OF MEN produce the article and ANOTHER SET OF MEN sell it, while the farmer and fruit grower generally insists on playing the game from every angle, without any regard whatever to his qualifications.

The average man has some difficulty in being an expert in more than one line of endeavor. The man who plans his crops; plants, tills, fertilizes, sprays, prunes, thins, harvests and prepares them for market, at the same time running the gauntlet of germs, parasites and adverse climatic conditions, has done at least ONE MAN'S WORK, and he ought to have sense enough to see that the sale and distribution of his product is ANOTHER MAN'S WORK, and should be handled only by men who are experts in that particular business.

Different Lines of Work.

The production and the sale and distribution of the products of the farm and orchard are two separate and distinct propositions, and call for entirely different qualifications in the men who do the work. A man may be

the most successful grower of high grade fruit, but have no ability at all as a salesman, and this is usually the case. It takes no ability to accept the first offer that happens along; any fool can give his property away. The man who puts his whole time, thought and energy into the production of a crop, has no time to study market conditions and transportation and distribution problems.

When Benjamin Franklin told his fellow-signers of the Declaration of Independence that they must hang together, or they would surely hang singly, he uttered a warning which seems pretty well suited to present day conditions confronting the farmers and fruit growers of this country. The old adage "In Union there is Strength," was never more self-evident than it is to-day; every other business in the country has adopted the plan of combining interests, but the farmer and fruit grower continues to permit himself to be used as a foot-ball to be kicked about by every conscienceless speculator that comes along; continues to go through life asking two questions: "How much is it?" and "How much will you give me?" letting someone else set the price on everything that he sells and everything that he buys.

The individual grower is helpless in the battle of to-day.

Methods that were good enough for our grandfathers will no longer answer —this is a progressive age and times have changed.

Orchard Fertilization*

Prof. W. S. Blair, Kentville, N.S.

SINCE our fertilizer supply is being shut off, owing to the war, it seems desirable that we should modify our orchard practices in order to meet conditions as they exist. With an unlimited supply of potash at a reasonable rate we have had little need to worry about the potash requirements of our orchards; in fact, in many cases probably more potash than actually necessary has been used in the past. This, however, does not say that we can do without this element in the years to come. The hope is that the shortage in this fertilizer is only temporary. Nitrogen also has in the past been reasonable as compared with present prices of seventy dollars per ton for nitrate of soda, which last year cost us only fifty dollars. The various phosphatic fertilizers have also advanced.

An acre of apples producing one hundred barrels, according to analysis, will take from the soil approximately as much nitrogen and phosphorus as an acre of wheat producing fifteen bushels, and about three times as much potash.

			Apples.	Wheat.
Nitrogen	.65	.45	.43	.41
Phosphoric Acid			7½	10
Potash			45½	16

Experiments have shown that a fertilizer carrying thirty pounds nitrogen, fifty pounds phosphoric acid and fifty pounds potash should be furnished to a full bearing orchard annually. It will be noticed that the phosphoric acid called for is much in excess of the amount the plant requires according to analysis, but in actual practice it is found that plants generally require an amount of phosphorus in excess of that called for from a chemical analysis of the product grown.

Considering the fact that nitrogen is one of the most important fertilizing elements, it is well for us to see that we are making the best use of the means at our disposal to obtain all of this element we can from the air by growing leguminous orchard cover crops. An analysis of the various cover crops in their green state gives a comparative idea of their fertilizing constituents.

	Common Vetch ready to bloom.	Peas 2 to 3 ft.	Crimson Clover.	Red Clover.
Nitrogen	.64	.45	.43	.41
Phosphoric Acid	.14	.11	.13	.13
Potash	.47	.36	.49	.45

It will be noticed that according to this the crops run fairly uniform in their green state.

Experiments conducted at Ottawa give the following comparative values of the different leguminous cover crops seeded July 13th and collected October 20th:

	Weight of crops per acre. tons.	lbs.	Nitrogen per acre.
Mam. Red Clover stems and leaves	6	1,319	82
Mam. Red Clover roots	3	1,200	48
Total	10	570	130
Common Red Clover stems and leaves	4	1,779	70
Common Red Clover roots.	2	1,445	47
Total	7	1,224	117
Crimson Clover stems and leaves	11	234	85
Crimson Clover roots	3	201	19
Total	14	435	104
Hairy Vetch stems and leaves	11	1,895	129
Hairy Vetch roots	2	345	18
Total	14	240	147

The common vetch was not grown for comparison in this test, but the chances are that it will compare hardly as favorably as the hairy vetch, but better than crimson clover.

That the turning under of such a cover crop does supply a large amount of nitrogen, which is taken from the air, is shown by tests conducted by following grain on land which had

A five-year-old McIntosh tree in the Glenburn Orchards of W. A. Fraser, Trenton, Ont., which bore a bushel of apples.

*Extract from a paper read at the last annual convention of the Nova Scotia Fruit Growers' Association.

Pruning operations in the orchard of J. A. Campbell, Aultsville, Ont. Note the type of ladder used.

previously been in grain with which red clover had been sown, as compared with adjoining plots not seeded to clover. The results were as follows:

	1st year. straw lbs.	grain bush.	lbs.
Banner oats where clover seed with the grain crop had been turned under	5,110	55	
Banner oats where no clover had been seeded with the grain crop	2,260	44	4
Gain from clover	2,850	10	30
	2nd year.		
Banner oats where clover seed with the grain crop had been turned under	3,270	44	33
Banner oats where no clover had been seeded with the grain crop	2,320	33	36
Gain from clover	950	11	2

A total gain of 3,800 lbs. straw, 21 bushels 32 lbs. grain for the two years from seeding clover with the grain crop, the growth of which was plowed under in the fall of the same year. This increase of crop is equal to approximately twenty-five dollars, at present prices, and the gain must have been due principally to the one crop of clover.

Similar tests with corn and potatoes show the following gains:

	tons.	lbs
Corn where clover sown with grain was plowed under	19	1,560
Corn where no clover was plowed under	16	1,160
Gain from clover	3	400
	Per acre. Bush.	lbs.
Potatoes where clover sown with grain was plowed under	320	
Potatoes without clover	280	40
Gain from clover	39	20

Repeated tests show that the clover does not lessen the yield of grain when seeded with it, and similarly a cover crop is not a detriment in orchard practice, but rather a gain.

It has been said that a good crop of clover turned under is worth as much in fertilizing value as ten tons of manure per acre. It would seem from what we can find out that this is pretty largely true. At least investigation shows that a vigorous crop of clover contains in stems, leaves and roots:

100 lbs. Nitrogen.
30 lbs. Phosphoric Acid.
85 lbs. Potash.

and well made barnyard manure from well fed animals contains in one ton:

10 lbs. nitrogen in 10 tons 100 lbs.
5 lbs. phosphoric acid in 10 tons 50 lbs.
9 lbs. potash in 10 tons 90 lbs.

At the present price of commercial fertilizer; that is, nitrate of soda seventy dollars a ton, slag sixteen dollars a ton, and muriate of potash we will say $150 a ton, although even at that price it is not available. Probably if you are buying mixed fertilizers you will pay at that rate per pound at least. Nitrate of soda contains about fifteen per cent. nitrogen, one ton would contain three hundred pounds, which at seventy dollars would be 23 1-3 cents a pound. Phosphorus approximately six cents a pound, and potash at the assumed price would be fifteen cents a pound, as muriate of potash contains fifty per cent. potash, or one thousand pounds in one ton.

Figured then on this basis, a ton of well made stable manure, from well fed stock, would be worth as follows:

10 lbs. Nitrogen at 23½c	$2.35
6 lbs. Phosphoric Acid at 6c	.30
9 lbs. Potash at 15c per lb.	1.35
Value per ton	$4.00

Considering, therefore, the scarcity of potash, we cannot afford to let this important fertilizing element be lost through our method of handling.

The foregoing is calculated according to the prices you have to pay for the various fertilizing constituents in commercial fertilizers, and does not include the value of manures for their humus contents. In both cover crops and manure, we are liable too often to forget about the important part humus plays in producing conditions suitable for crops other than the supplying of necessary plant food.

When speaking of well fed and well kept stable manure, it is well for us to keep in mind that manure from animals poorly fed is not nearly as valuable as that from well fed animals, and that a manure from which the liquids have been lost is not nearly as valuable as one where it has been retained. Just in this connection it is interesting to note that almost half of the total value of the excrement lies in the urine. Nearly four-fifths of the potash is found in the liquids voided by animals.

The object of this address is to show the comparative value of the leguminous crops as compared with stable manure, and if possible to encourage a more extensive growth of the nitrogen gathering crops in our orchards.

It would seem to me, in the face of conditions that at present exist, we should adopt some system to make a greater use of the clover and vetch than we have in the past.

In conclusion I would say we should depend more than we have upon clover; that if necessary, stable manure should be used to give the necessary plant food and soil conditions to secure a good stand, and liming usually will be necessary. Basic slag may in some cases be used to furnish the lime requirements, in addition to the phosphorus. In case acid phosphate is used, lime should also be used. The potash can in a measure be secured by taking more care of our stable manures, and using more absorbents, such as straw, sawdust and dried peat, to hold the liquids voided by our farm stock.

Seasonable Hints

The first thing that should be attended to in the orchard this spring is the cultivation of the land about the bushes and fruit trees. With an ordinary hoe and rake, the land should be deeply worked and pulverized, and after each rain it should be loosened again. Upon the manner in which this is done will depend largely the supply of moisture and food for the summer. Leave the winter covering of straw on as long as possible. If uncovered too soon, the plants will blossom early, and may get caught by late spring frosts. Of course if the weather continues so that the plants make vigorous growth, it will be necessary to remove the covering earlier.

Grapes should not be uncovered until later, or the young buds will be liable to get nipped by frosts. It is better to have a good crop of fruit a little late than none at all.

Raspberries may be uncovered now, if they were covered in the fall.

Spraying Methods in Nova Scotia.

L. D. Robinson, Berwick, N.S.

So far as Nova Scotia is concerned, spraying is the most important factor in the production of first-class fruit. Here, pruning, cultivation, fertilization and thinning count for little, where thorough spraying has been neglected. In the Annapolis Valley, especially, the congestion of orchards, aggravated by numerous wild apple-trees growing in pastures, on the road-side, and even in the woods, greatly facilitates the spread of orchard pests, and places a high premium on spraying.

Since the introduction of lime sulphur as a fungicide, the popularity of Bordeaux has steadily declined, owing to its greater tendency to cause spray injury. At present, Bordeaux is prohibitive on account of the demand for copper for war purposes. A new rival of lime sulphur, "soluble sulphur," was placed on the market last year.

Notwithstanding some serious burning that resulted from its use, there are good reasons for regarding it as the coming spray. Experiments conducted by Prof. G. E. Sanders, on the premises of S. B. Chute, Berwick, appear to prove conclusively that "soluble sulphur" gives excellent results when used with lime arsenate, instead of lead arsenate. However, the wise orchardist will not give up the use of lime sulphur till further experiments make assurance doubly sure that a better fungicide has displaced it.

Insecticides.

In combining insecticides with fungicides, care must be taken that reactions injurious to fruit and foliage do not occur. If these combinations result in the presence of free arsenic, burning is sure to follow. Paris green will combine well with Bordeaux, but not with lime sulphur. Lead arsenate is an excellent insecticide to use with lime sulphur or Bordeaux, but causes excessive burning when used with soda sulphur (soluble sulphur) as many proved last year, to their sorrow. Lime arsenate being a stable compound, can be used without danger of spray injury, with either of the three fungicides.

Lead arsenate at the rate of five pounds to one hundred gallons, should be used in all sprays for the orchard. This should first be reduced in water, and poured into the spray tank when the machine is in full motion. It should be remembered that the poison in all properly prepared sprays is not a liquid, but a fine powder in suspension. A few moments must always be allowed after starting the machine, to stir up the poison, before the nozzles are opened.

Examine fruit buds carefully before applying the first spray, for apple scab, and if aphids are present, add Black-leaf forty to this spray, at the rate of one pint to one hundred gallons.

Dilutions of Lime Sulphur.

The margin between the effective strength and danger point in the use of lime sulphur spray is narrow. It is very important that accurate dilutions should be made, and this can only be accomplished by the use of the hydrometer. When this instrument is allowed to come to rest in pure water 60 degrees F., the figures 1,000 appear at the surface. If salt be now added, the glass will rise in exact proportion to the quantity dissolved. When placed in any dilution of lime sulphur, the decimal part of the reading at the surface denotes its strength.

Careful experiments have shown that the strength of lime sulphur dilutions for use on foliage, and the time of application should be as follows:

1st application, when blossom buds show green, 1.009.

2nd application, when blossom buds show red, 1.008.

3rd application, when most blossoms have fallen, 1.007.

4th application, 10 to 12 days after 3rd application, 1.0069.

5th application, when apples are the size of large crabs; if wet and cold, 1.0069.

When scale or bark louse is present, use dormant strength for 1st application, 1.03.

Place the hydrometer in a portion of the concentrate to be used. Suppose it to come to rest with the figures 1.288 at the surface. The decimal .288 denotes its strength, and the decimal .009 that of the first spray for apple scab. It is evident that the dilution figure will be found by dividing .288 by .009, which gives 32. This means that to make a dilution 1.009 hydrometer strength, each 32 gallons must contain exactly one gallon of the concentrate. To find the number of gallons concentrate to use in making 160 gallons, we simply divide 160 by our dilution figure 32, which gives us five gallons.

We can obtain the same result more briefly as follows:

$$\frac{160 - .288}{.009} = 160 \times 009 \qquad \frac{288}{} = 5.$$

Hence the following simple rule for making any dilution from any lime sulphur concentrate: Multiply the number of gallons dilution to be made, by the decimal part of the desired strength, and divide this result by the decimal part of the strength of the concentrate used. The result will be the required number of gallons concentrate to be used in making the dilution.

Apparatus.

The power sprayer is necessary in all orchards producing upwards of five hundred barrels yearly. A good machine should combine simplicity, lightness and durability. It should contain a blade propeller agitator, and be capable of maintaining a pressure of at least two hundred pounds on two lines

The product of this crop of tomatoes averaged one dollar a plant. The first fruit was picked Feb. 10, 1916. It was grown by R. Hemstock, gardener for J. B. Laidlaw, The Grange, Whitby, Ont.

of hose. The lines of hose should be from thirty-five to fifty feet in length, fitted with rods eight to sixteen feet long, according to the size of the trees, and nozzles capable of throwing a driving spray, rather than a fog-like spray.

Asters and their Requirements.

A. V. Main, Ottawa, Ont.

THIN, sandy soil or impoverished ground does not suit asters. They require a good rich soil, especially if watering is not done. Where there is an abundance of water and time in which to apply it, rich soil is not so imperative.

The best asters come from what gardeners call good deep soil, moderately supplied with rotted manure. Cultivate it regularly with the hoe and use water sparingly. Instead, dig deep and prepare the ground for the droughts, that we seldom escape. Queen of the Market, Purity and Daybreaks stand close planting, twelve inches both ways. The taller branching sorts require eighteen inches and two feet between the rows where ground is not valued by the foot. An application of your favorite garden fertilizer in August will help to furnish exhibition winners.

I have not found disbudding the plants, or confining the plants to three and four blooms, of any particular advantage. With a new piece of ground, deeply cultivated, good stocky plants to begin with and good varieties, blooms will come fit either for market or exhibition and give profitable returns. One of the best disbudders is the aster bug. It is a most destructive pest that bleeds the best of buds and causes them to wilt. I never knew of such a visitor until I entered the city limits. The best remedy I know is to get up at daybreak and spray with hellebore, while the dew is on the plants. I use an electric insect exterminator, made at Woodstock, Ont. It is a pair of bellows, which are used with dry powder. It holds three-quarters of a pound of hellebore. Full directions are given with it.

Plants that become yellow from stem rot should be pulled out. Asters will be more free from pests and diseases if fresh locations are given them and, as already stated, an uninterrupted growth from the seed bed to finished bloom. Late sowings in May outdoors proves that we often err in raising the plants, in a greenhouse temperature, that gets "uncanny," dry and hot, not once but many times.

Plan of a Home Vegetable Garden

The following planting table has been prepared to meet the requirements of a town or city lot 33 x 30 feet. The estimated cost of the seeds and plants is $2.30, and the estimated value of the products $25.00.

W. T. Macoun, Dominion Horticulturist.

Row.	Kind of Vegetable.	Seed required for 30-ft. row.	Distance apart of rows.	Depth to sow seed.	Distance to thin plants.	Time required to develop for use. Based on results at Ottawa.	Yield per 30 foot row
1	Parsnips	1 packet	18 ins. from boundary	½ inch	2 ins. apart	107 to 112 days	60 to 80 lbs.
2	Beets	1 ounce	12 ins. from row 1	½ inch	2 ins apart or as ready	53 to 70 days	50 to 60 lbs.
3	Carrots	1 packet	12 ins. from row 2	½ inch	1½ ins. apart or as ready	64 to 76 days	65 to 75 lbs.
4	Onions	¼ ounce	12 ins. from row 3	½ inch	1 in. apart	93 to 120 days	40 to 60 lbs.
6	Onion Sets	1½ pounds	12 ins. from row 4	2 inches	Plant 2 ins. apart	66 days	40 to 60 lbs.
6	Early Cabbage and Cauliflower	12 plants each.	15 ins. from row 5	Roots well covered	Plant 15 ins apart	102 to 121 days	3 to 5 lbs. per head
7	Spinach, Mustard and Cress	1 packet each.	15 ins. from row 6	¼ inch	4 to 6 inches apart	60 days	Weight varies much.
8	Lettuce and Radish, followed by Squash and Melons (3 hills of each, 5 ft apart).	1 packet each.	12 ins. from row 7	¼ and ½ inch.	Lettuce 6 ins. Radish as ready	50 to 70 days 21 to 36 days Muskmelons 110 to 144 days. Watermelons 96 to 161 days. Squash 66 to 104 days.	Ditto.
9	Dwarf Early Pea	4 ounces	12 ins. from row 8	2 inches	1 in. apart	49 to 61 days	6 to 7 quarts in pod
10	Second Early Pea	4 ounces	18 ins. from row 9	2 inches	1 in. apart	52 to 56 days	Ditto.
11	Late Pea (semi-dwarf)	4 ounces	18 ins. from row 10	2 inches	1 in. apart	63 to 71 days	6 to 9 quarts in pod
12	Lettuce and Radish (2nd sowing of this). Might be a path. Sown or planted after danger of frost	1 packet each.	18 ins. from row 11 is over.	¼ to ½ inch.	As before for these	As before	Weight varies much.
13	Early Beans, ½; Late Beans, ½	2 ounces each.	18 ins. from row 12	2 inches	Plant 2 ins. apart	Early, 47 to 53 days Late, 66 to 76 days.	10 to 20 quarts.
14	Late Cabbage and Cauliflower	10 plants each.	18 ins. from row 13	Roots well covered	18 ins. apart	107 to 123 days	4 to 6 lbs. per head
16	Celery (start plants early	1 packet	24 ins. from row 14	¼ inch	Plant 5 ins. apart	5 months	12 to 19 ozs. per head.
16	Swede Turnips. Sow June 15 to July 1.	1 packet	24 ins. from row 16	½ inch	5 to 7 ins. apart	60 to 90 days	60 to 80 lbs.
17	Peppers & Egg Plant, or 3rd sowing of Lettuce and Radish or more Late Cauliflower, or early sowing of Parsley.	1 packet each.	18 ins. from row 16	Roots well covered	Plants 15 ins. apart	Peppers, 132 to 178 days Egg Plants, 150 to 162 days	Yield varies much.
18	Tomatoes, trained to single stems and tied to 5-foot stakes or wires	1 packet or 15 plants, 2 feet apart	24 ins. from row 17	Roots well covered	Plants 2 feet apart	108 to 170 days, de-162 days, depending on when started and season	100 to 150 lbs.
19	Early Corn, followed by late sowing of Lettuce & Radish.	1 packet	36 ins. from row 18	2 inches	Hills 3 ft. apart, 5 plants per hill	66 to 94 days	40 to 60 ears.
20	Later Corn, about 2 ft. from boundary.	1 packet	36 ins. from row 19	2 inches	Ditto	77 to 112 days	Ditto.

In addition to these, cucumbers would be grown over wire netting tacked to one of the fences. Melons, cucumbers and squash should be thinned to from three to six plants per hill.

Growing Vegetables for a Family of Seven

A. P. Marshall, Niagara Falls, Ont.

WHAT to do with a vacant lot that had been used for two seasons to keep chickens in was the problem that faced me in the spring of 1915. The soil needed some refreshing and how to provide it and obtain a return for the trouble was the question.

Owing to the war and probable high prices for food stuffs, campaigns were carried on last spring recommending more production and suggesting the utilizing of all available land to grow some useful crop. This, coupled with a desire to practise greater economy, prompted the idea of working this lot of about fifty feet by one hundred and twenty feet in vegetable crops suitable for a table where young but hungry mouths let nothing go to waste and are ready to tuck away a good healthy quantity of all that's good at every meal.

Since part of this yard must keep the few breeding hens, a small part was yarded for them, leaving all of the balance free to be used for garden purposes. Owing to the nature of the land it looked like a difficult matter to accomplish anything, and as the neighbors said as soon as dry weather started the ground would bake hard and everything would dry up. It was natural to almost lean to their view, but if the land was to be refreshed in any case, it was worth a trial.

Not having developed the idea until well along toward spring the land did not get any fall preparation. We obtained a little stable manure, used what hen manure was available, and sprinkled the soil with a little air-slacked lime and had a man plow and harrow the land well. If we could have had a disc harrow, better preparation could have been made of the land, making less work afterwards, but the harrow was too big to get through the gateway. The manner in which the household appreciated the big variety of fresh, crisp vegetables was ample repayment for the effort, and as we were able to have crops as early as the market growers and earlier than our neighbors, in spite of poor first conditions, great satisfaction was felt with the effort.

In the meantime, before planting, time was spent in carefully selecting a good variety of seeds to give a steady supply, once the crops started to bear. When these were finally selected there was just $3.00 worth to order, besides a peck of local potatoes, thirty-five cents, and two dozen tomato plants, twenty-five cents, making three dollars and sixty cents in all. The teaming, manure, plowing, and harrowing cost two dollars and seventy-five cents, so that the total cost was six dollars and thirty-five cents. When we consider the healthful occupation it gave, the satisfaction of being able to pick our own supply as we wanted it, and the saving effected, the experiment was a huge success.

In dividing up the land, three long paths were made the full length of the garden. Each bed was about six feet square, except where small, round, tapering beds were formed to let vines run. With a late start and no time to lose, plantings were begun as fast as the beds were got ready, and plantings made each week-end until all the seeds were used. With each kind of seed, however, only a small portion was used at each planting so that new lots were coming up to give continuous supply throughout the season. In some cases, where frost got the first plantings, later sowings came right along and followed so close as to get in as early as it was possible and avoid the frost.

Our varieties consisted of three varieties of peas, four of beans, two beets, one turnip, two carrots, two lettuce, two radishes, three corn, two parsnips, one parsley, one cabbage, two tomatoes, one summer squash, two squash, two pumpkins, one muskmelon, one watermelon, two cucumbers and potatoes, with sunflower and mangels for the chickens. Our potatoes were used as soon as produced, without waiting for quantity, and supplied seven of us from early July until the end of August, when

Victoria Park, Peterboro, Ont., the flower beds in which are planted and the grounds cared for by the local horticultural society.

there was no trouble securing all we wanted at a fair price.

Of the other vegetables, we obtained all we could eat, being obliged to give away and sell some to prevent waste. All tops and unused parts went to the chickens. Thus everything was turned into some use. As the crops were taken out it became possible to enlarge the chicken yards and finally, by yarding tender stuff, the whole place was given over to them. Besides this, beans, peas, tomatoes, cucumbers and similar vegetables were put up in jars for winter use, spreading the use of the crop over the whole season. Pumpkins, squash and such things were placed in the cellar to gladden the hearts of the little ones as well as the grown-ups when turned into pumpkin pies and similar culinary delights.

Of course the crop did not produce itself just by preparing the soil and putting the seeds in the ground. Had they been left to themselves, hardly anything would have grown, for most of the land would have baked as hard as a brick. The simple plan followed was to make a hurry-up job of hoeing the whole place as quickly as possible after every rain. Having no facilities for watering, this was the only course to follow and it worked well. Of course the vines were sprinkled with lime occasionally to keep off the bugs. This we found the most effective remedy we have ever used.

We attribute the results entirely to the preparation of the soil, good seeds, frequent hoeing, especially after every rain, and to our never allowing the soil to get in the condition it would have had it been left alone to choke off all the growth at the start. Anyone who wishes can figure what seven healthy people will eat in a season and then add considerable to that and then decide whether the effort to utilize a vacant lot proved profitable or not. By planning a little now, one can arrange to take advantage of every opportunity for getting the best results the next season.

Garden Suggestions

Henry Gibson

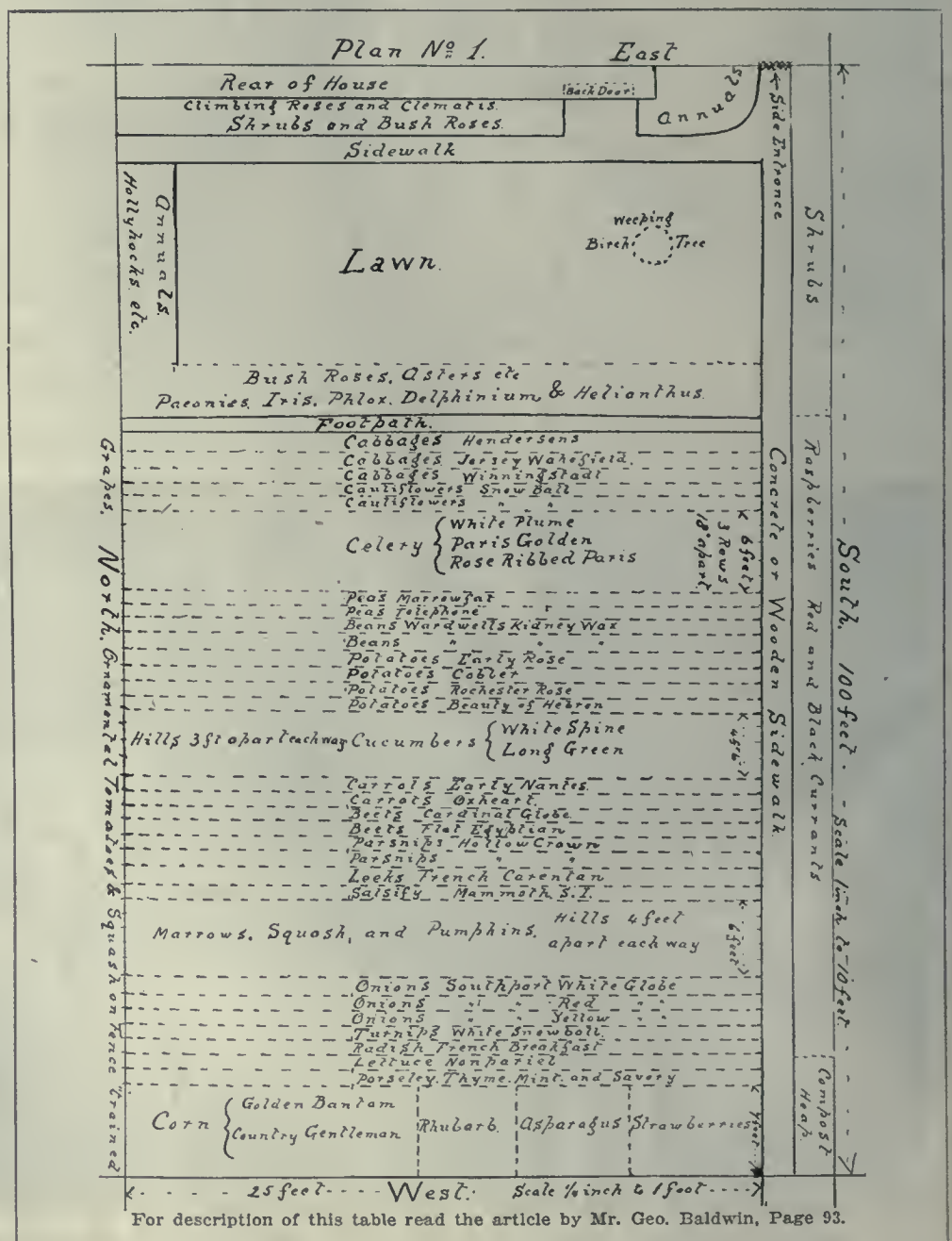
The mulch of manure that has been on the lawn all winter may now be raked off and carted away. Go over the lawn with an iron-toothed rake, and tear out all the crab grass that you can find. This is the time to repair and sow down any bare spots in the lawn; the sooner it is done now, the less patchy it will look. Any new lawns that are being contemplated should be sown at the earliest possible moment when the soil is in condition. It is better to sod any steep grades that are likely to wash badly, or you will have to be sowing all the time.

Roll the lawn with the heaviest roller you can get, and do it often. Have you decided to feed the lawn this year? Remember that constant cutting, year after year, takes away a large amount of plant food, so that in time the lawn is sure to deteriorate. It's the same with the lawn as it is with the vegetable garden; if you don't feed it, it won't feed you. You have to feed the grass if you would have a fine greensward. The mulch you had on all winter will have been beneficial to it since the rains and melting snow will have washed down valuable plant food.

There are specially prepared lawn fertilizers that are good to a certain extent, but the manufacturers of these, wishing to create a good impression at the outset, usually include in them a large percentage of sulphate of ammonia or nitrate of soda. These certainly do what is claimed for them, i.e., make the lawn green in a short time, but the trouble is that the effect is not lasting. These two ingredients are stimulants, rather than real plant foods, and their effect upon the lawn may be likened to a whip upon a tired and hungry horse; it makes him go faster for the time being, but it does not appease the hunger.

Roses must be pruned hard back to get good results. The hybrids should be cut back to two or three eyes. Teas do not require such heroic treatment, and as they burst into leaf sooner than do the hybrids when pruned, we like to leave them until the last for pruning.

For trellis work, or around the plazza, if you are thinking of any new roses, don't overlook some of the Penzance sweet briars; they are good.



For description of this table read the article by Mr. Geo. Baldwin, Page 93.

Planning the Garden of Satisfaction

By Geo. Baldwin, F.R.H.S.

HEREWITH are shown two plans of gardens intended to suit the requirements of the average backyard gardener. Number one is for a combined flower and vegetable, and number two is solely for vegetables. The varieties given are the best as determined from actual experience. They can be relied upon. These plans will not suit all gardens as to location and size, but are given as an idea upon which to plan. By all means plan. It's the only way.

By the time this is in print there will still be time to make a hotbed or coldframe to raise your own plants, and thus save time and expense. The following are the names of a few of the best varieties of flowers with which to beautify the surroundings of your lawn: Climbing roses, crimson rambler, Dorothy Perkins, and Tauschendon, Clematis; Jackmanni, hollyhocks. Buy the plants, as they do not bloom the first year from seed. If you insist on growing them from seed, procure Chaters double mixed.

For bush roses, the following are six of the best: Marquis de Sinety, copper and yellow; Miss Cynthia Forde, rosy pink; Mrs. A. E. Coxhead, red vermillion; Mrs. W. C. Miller, blush salmon rose; Mollie Sharman Crawford, pure white; Juliet, gold on one side of petal and rosy red on reverse side. Paeonies: Festiva Maxima white; Humeii, rosy pink; iris; Mrs. Horice Darwin, Madame Chereau, Pallida Dalmatica. Delphiniums: Duke of Connaught, Musea, Persimmon. Helianthus: Miss Mellish and Daniel Dewar.

Shrubs and annuals are too well known to need describing. Be sure to get a good strain of asters and gladioli, as there is nothing that will set a garden off better than these.

Now for the toothsome vegetables. We will take them in the order shown in the plan on page 92: Cabbages, unless you want variety, Henderson's Summer Early will answer all purposes for early, mid, late. It is a good plan to order of your seedsman now if you do not raise your own plants, as they grow most of the best varieties for sale, and by ordering now you can generally get what you want.

There are several good varieties of peas and beans. Those marked on the plan will give good satisfaction. Don't forget that the Telephone Pea is tall growing and requires some brush or netting to run up. The writer has experimented with thirty varieties of potatoes for the last five years. The three given on the plan have proved to be the best during that time. They were grown on a clay loam with sandy sub-soil, and are varieties the seed of which can be secured in almost any feed store.

Cucumbers are best raised in the frame and transplanted to the ground when the weather permits, as the squash-bug plays havoc with the young seedlings when grown outside. The two varieties of carrots are good for nearly all soils, but if you have a deep loamy soil, try Carter's Red Elephant. The same comment applies to beets and parsnips. If you want the long blood red beet, or the long Sutton's Student parsnip you must have deep soil.

Leeks are best grown in the trench with the celery and earthed up together. Try some. Salsify is splendid for soups when sliced up; in fact, you would almost think you had oyster soup. Marrows, use white bush. Squash, Green Hubbard and Summer Crookneck are good. You will find by growing the Southport red, white and yellow onions you get the best for flavor and keeping, but if you want them big, it will be necessary to start them inside, and have them eight inches long by May 24th, the time for planting out. Plant them in rich soil and give lots of moisture.

While a row each of radish and lettuce is shown on the plan, it is not absolutely necessary, as they can be grown to advantage in between cabbage rows, or on the ridges of the celery trench. Do not deprive yourself of the early Golden Bantam corn; it is by far the best early corn, and Country Gentleman or Stowell's Evergreen for late.

Get two or three nail kegs from the hardware and place over some of the rhubarb roots, packing manure around the outside, and have rhubarb a month earlier. Do not cut the asparagus the first year, and do not let the seeds ripen, but cut the brush off early in the fall, and lay on the bed for protection.

A celery bed, three weeks after planting, with radishes growing along the top of the ridges.

Turn the unsightly board fence into a source of profit by covering it with tomato, grape and similar vines.

If your strawberry bed is two years old, take the runners in late August and make a new bed. Four years is the life of the strawberry patch. For the hills of cucumber, squash, marrows and pumpkins, dig a hole fifteen inches square and deep, and tramp in ten or twelve inches of well decayed manure in the bottom, covering over with three or four inches of rich soil. Keep the roots moist and the tops dry, and you will have good results. It is not necessary to grow these on little hills or mounds; in fact, from my experience the reverse is the best method. Try it.

You will notice that no space has been allotted for tomatoes. They are very accommodating, and will grow in any old place except full shade. I get the best results from planting them up against the fence on the north side of the garden, tying them to chicken wire, which is stretched on the fence from one end to the other. Prepare the place for each root the same as for squash and pumpkins, allowing a space of four feet for each plant. The fruit ripens quicker, and by proper attention a greater yield is attained, besides helping to keep the garden cool in the hot days. Full cultural directions for onions, cabbage, tomatoes and celery will be given in later editions.

The May issue of The Canadian Horticulturist will contain an article describing the preparation of the garden for planting, and necessary precautions to be taken to combat the insect pests. Prepare the celery trench a couple or three weeks before planting time in the following manner and see if you cannot have celery this year as sweet as a nut and fit to set before the King. The plan shows six feet for this purpose, so mark off the required width and length, then throw into ridges on each side nine inches of the soil, then put six inches of decayed manure and dig that in as deep as possible, throwing three inches of fine soil on top. Level it off, and let it settle till June 1st. Order your plants now if you are not growing them, allowing eight inches to a plant in rows eighteen inches wide. The accompanying photo will show you how to cover up an unsightly board fence. All the pumpkins in the foreground were grown on the fence, besides grapes and tomatoes galore.

Early Work in the Flower Garden

Mrs. E. V. Nicholson, St. Catharines, Ont.

A DESCRIPTION of how one amateur starts planting seed for early spring flowers may be of interest to beginners. In the first place, I procure the best seed that can be bought, and then prepare the ground. The soil is placed in the oven and well heated so as to kill the seeds of weeds. The reason I like to kill the weed seeds is because they always grow much more quickly than the other seeds, and by the time the flower seeds are up the weeds crowd out the smaller plants.

Next I secure some four or five inch pots and fill them until within three inches of the top. I then take a small sieve and sift some earth on the top and sow the seeds. A little more earth is then sifted on them. A small board that is perfectly smooth, so that nothing will stick to it, is next placed over the top of the pot. Some seeds are so small they will cling to a piece of wood if it is at all rough.

Seeds of scabiosa, marigold, and other similar flowers that are large do not require so much care in planting. I cover them thoroughly, for they grow better, and then have a pan of more than lukewarm water and set the pots in it, letting the water come up as far or farther up on the pots than the earth in the pot. When the earth begins to look moist, I take them out and drain them well. Then, if I have a hotbed ready I put them in there. If not, I put them on the top of the furnace and watch them carefully to see that they do not become too hot.

I have had petunias up in two days by following this plan. I cover them with a piece of glass or some brown paper, the paper being just as good as the glass. The reason I like planting seeds in pots instead of boxes is that we are not raising plants for sale, and if you plant them in boxes you will have phlox, stocks, single and double petunias, plumed and dwarfed celosia, marigolds, asters, etc., all together, and I do not like that. Some seeds are long, some fine, some have a fine leaf, and some are large, and when watered they are apt to get washed together, and then again some are so much longer than others in germinating that they keep the others back.

Transplanting.

When the plants are the right size I take a fish box and transplant them about three inches apart. After transplanting them I always keep them out of the sun for a day or two in order to let them stand up a little before putting them in the window or hotbed. I also start my perennial seeds the same way. Asters I do not start until May. I plant them in a similar manner. I always have the best of luck when using pots, and they do not take up so much room as boxes on the furnace. When I water them I always put them in a pail of warm water.

I put my plants on the furnace in order that I may have early flowers and because our hotbed is not ready. That, therefore, is the only way I can do. A furnace is not very hot at this time of year. I find it really a good idea, as it is a bother to have a lot of boxes around the kitchen. Our cellar is light aid warm and is almost as good as a hotbed. Last April the seeds that I started on top of the furnace were out by about the middle of the month and transplanted into pots, and did well.

Plant enough fruit trees and bushes so that you can share with the robin and other birds. It pays to have them around.

The Rex begonia is one of the most attractive house plants. Its variegated foliage always adds color and attractiveness to the window garden.

Don't make bird house openings larger than will easily accommodate the inhabitant. They prefer small openings as they are easier to protect.

Annual Flowers Worthy of Favor

F. E. Buck, Central Experimental Farm, Ottawa

THOSE flowers known as annuals, the life of which does not extend beyond one season, are more popular to-day than ever before. Some flowers in the great annual class are perhaps better known than any flowers. The names of such as sweet peas, china asters, mignonette, nasturtiums, stocks, are almost household words. This fact alone is proof that they must be popular.

The three main reasons for this popularity are perhaps the ease with which they may be grown, the cheapness of the seed of annual flowers, and the long blooming season of many of them. For instance those mentioned, and many other annuals, will continue in bloom for ten weeks to three months. Few perennial flowers or shrubs can equal them in this regard.

All the energy of the annual flower is put into its short life; it does not seek to store up food for the next year as do perennial flowers, consequently its life, although short, is a gay one. From seed to seed, in a period of about five short months, is the life cycle of most annuals.

Typical Annuals.

Attention can be drawn best to the merits and possibilities of annuals by taking one or two typical examples. The sweet pea is perhaps the most popular of all annuals. During the past fifteen years it has passed through a remarkable period. The development of the sweet pea, and some other annuals as well, during the early years of this century has been in response to a popular demand for easily grown flowers suitable for the smallest as well as the most pretentious gardens. Such annual flowers have done much to make our towns and cities more beautiful and life a pleasanter thing.

Keats, many years ago, immortalized the sweet pea in charming verse when he wrote:

"Here are sweet peas on tiptoe for a flight,
With wings of delicate blush o'er tipped with white;
And taper fingers catching at all things,
To bind them all about with tiny rings."

However, very few were grown in those days. Few colors were known, not half a dozen. Few people had much regard for them. Introduced from Sicily about 1700, it was not till 1870 that any improvement in regard to the size, vigor, or substance of the flower took place.

The years 1901-'02-'03 were other very important dates in the life of the sweet pea, for in these years the beautiful, modern sweet peas known as the Spencers were introduced to the public. The Spencers are handsomer than most types, owing to the fact that the "standard" is waved or frilled, the "standard" being the largest of the five petals or colored parts of the flower. From those years on the popularity of the sweet pea increased so rapidly that a few years ago over fifty tons of sweet pea seed sold in Great Britain alone in one year.

For the Small Garden.

The spirit which old Thomas Brown breathes in these verses

"A garden is a lovesome thing, God wot,
Rose plot,
Fringed pool,
Ferned grot—
The veriest school of peace;
And yet the fool
Contends that God is not—
Not God! in gardens! when the eve is cool?
Nay, but I have a sign:
'Tis very sure God walks in mine."

will be eventually the spirit which directs every man or woman who takes up gardening for a hobby. To one, however, who has had no practice in gardening effort, the growing of a few simple annual flowers makes a successful start more assured, and annuals are often the best flowers for the beginner with the small garden.

Easy to Grow.

In all districts which have weather conditions similar to those at Montreal, Ottawa or north of Toronto, the best way to grow annuals with success is to sow the seed during the first two weeks in April. It should be sown either in the house, in a greenhouse, or in hotbeds. Good, friable, loamy soil and flower pots or shallow boxes for holding the same are all that is necessary in the way of material. Good seed should be used. Intelligent seed sowing, careful attention to proper watering and temperature will invariably bring the best results. The seedlings will be strengthened and made more stocky if they are once transplanted before planting out into the garden, but this is not absolutely necessary.

Certain annuals also will do best if the seed is sown directly into the place which they are to occupy in the garden. Most people know that flowers like the sweet pea, nasturtium, poppies, portulaca, and climbers like the Morning Glories, should be sown direct and not transplanted. In such cases the seed should be sown about the first week in May or before, if the soil is fit. Many people may not know, however, that such flowers as balsams, candytuft, cosmos, calliopsis, gaillardias, everlastings, liniums, lupines and petunias will

The nearly four hundred aster blooms here shown were gathered on one occasion in the garden of Mr. Gadsby, of Hamilton. They comprised five colors and were grown from a twenty-five cent package of seed.

One of the walks in the modest garden of T. H. Taylor, Hamilton, Ont.

do remarkably well when the seed is also sown directly into the garden.

Advantages of Growing Annuals.

One reason for the popularity of annuals is that they are easy to grow. They have several other advantages over all other flowers.

Annual flowers may be used to fill up the gaps in the perennial borders and to give bloom during those periods of the summer when few other flowers or shrubs are in season.

Annuals may be used to produce bold effects by using large masses of them in strategic positions. For instance, petunias, verbenas, Shirley poppies, salvia, snapdragons, will prove very effective when used in this way.

For new gardens annuals are practically the only flowers which may be depended upon to give fine effects the first year inasmuch as perennial flowers and shrubs will not flower till the second and third years after planting.

No other groups of flowers are so rich in fragrant flowers as the annuals: "The perfume of tree and flower, of grass and mellow earth, is Nature's incense." The best known fragrant annuals are: Sweet peas, mignonette, ten week stocks, nicotiana, petunias, especially doubles, candytuft, pinks.

For cut flowers annuals give splendid rewards. The following is a representative list of annuals which give abundance of suitable blooms for cutting for decorative purposes.

Annuals for Cut Flowers.

China asters, sweet peas, nasturtiums, sweet sultan (Centaurea), pin cushion flower (Sweet Scabious), single collarette dahlias, ten week stocks, mignonette, snapdragons, everlastings, zinnias, galliopsis, or coreopsis.

The following annuals are among the most beautiful of all flowers:

Salpiglossis, sweet peas, godetias, lavateras or mallows, shirley poppies, ten week stocks, larkspurs (tall varieties), snapdragons, verbenas, petunias, cosmos (early flowering), Swan River daisy.

How I Made My Garden Pay

Miss Chrissie Anderson, Box 83, Ancaster, Ont.

WE have a garden plot sixty-two by seventy-five feet, bounded on the east side by a perennial border about six feet wide, filled with old-fashioned flowers, clumps of purple iris, ribbon grass and paeonies. These bloomed so profusely it occurred to me our garden might be made a source of profit as well as of pleasure. It was decided to use the whole plot of ground for flowers.

In the fall, I ordered two hundred bulbs, tulips and daffodils, which I tucked into corners in the border. I had a box filled with earth and carried into the house so when March came I filled a number of shallow boxes and sowed my seeds. Three packets of Crego Giant asters, pink, white and lavendar, and three of snap-dragon, pink and white. In the first week of April we had a load of stable manure spread over the garden, which was then plowed and harrowed and raked into shape. The border was lightly forked over so the plants were undisturbed.

Next I set to work to plant my sweet peas. I had three long trenches dug, about a foot deep and three feet apart. I added a layer of manure, covered with earth, then the seeds, each color by itself, and more earth, filling in the trenches as the peas came through. Seventy-five gladioli came next, in rows a foot apart. Then six rows of dahlias, about two feet apart, and three large aster beds.

Meanwhile my seed boxes in their sunny south windows had not been idle, and about the middle of May I had two hundred and fifty asters to fill the beds. I set them out, a foot and a half apart. I had two hundred snapdragons, which I treated the same way, except that I waited until the end of May, before transplanting.

The end of April our bulbs began to bloom. We sold fifteen dozen tulips and daffodils, for from fifteen to twenty-five cents a dozen, to hotels for table decorations. The iris were next in order and eight dozen spikes went to a florist at twenty five cents a dozen. Meanwhile the paeonies were coming out and we had thirteen dozen blooms at thirty-five cents a dozen. These we sold to hotels and tea rooms, as their price was better.

Our sweet peas began to flower the end of June and we made a contract to supply a florist with so many hundred blooms a week at forty cents a hundred, but we reckoned without the green fly. Owing to the wet season this pest was very bad, and in spite of much spraying, our peas were gradually ruined. Still we were able to fill our contract to the extent of eleven hundred blooms. They were put up in bunches of twenty-five, each color by itself. The snap-dragons we sold the same way at seventy-five cents a hundred. During the season we sold fourteen hundred blossoms.

Gladioli are popular, but the price was low, being twenty cents a dozen. We had twelve dozen. Dahlias were cheap and plentiful. We had, in all, two thousand blooms.

Our asters were lovely and flowered profusely. We sold two thousand blooms to a florist at seventy-five cents a hundred. These flowers were cut the night before shipping and kept in water over night. Then they were packed in cardboard boxes.

As we live only seven miles from the city, transportation was an easy matter.

Tulips and daffodils, 15 doz.	$ 3.00
Iris, 8 doz.	2.00
Peonies, 13 doz.	4.55
Sweet peas, 1,100 blooms	4.40
Snap-dragons, 1,400 blooms	10.50
Gladioli, 12 doz.	2.40
Dahlias, 2,000 blooms	15.00
Asters, 2,000 blooms	15.00
	$56.85

Onion sets may be planted as soon as the land can be worked. They are plentiful and of good quality this year. Use either white or yellow kinds; they look better on the table and are milder than the red.

Sowing Vegetables

John Gall, Inglewood, Ont.

THE importance of buying seed of a good strain cannot be overestimated. No matter how high the price may seem, if it be known to the purchaser to be of the best, better to have it than run the risk of losing the crop or having a measly-looking return for labor and trouble expended through the purchasing of cheap seed.

Vegetables may be divided into two groups—the cool season and the warm season vegetables. The cool season vegetables do best at a low temperature and may be started in the open in the beginning of May, or even earlier, according to the condition of the ground, which must always be in a fit condition before any attempt should be made to work it up. The following include the chief cool season crops: Peas, carrots, beets, parsnips, radish, turnips, cabbage, cauliflower, lettuce, spinach, parsley, celery and onions.

The warm season vegetables include: Tomatoes, egg plant, cucumbers, melons, beans, peppers and corn. Seed of these should not be sown until after the middle of May, or until the ground has warmed up. Warm season vegetables require warm soil and a southern exposure, whereas the cool season vegetables require a northern situation. If very early vegetables are wanted, the southern exposure is necessary.

The soil best suited to beans is that which is rather light than otherwise, always provided that it is thoroughly enriched by manure. The seed should be sown about the middle of May for an early crop, the best variety being Early Red Valentine (green pod), Golden Wax (golden pod). Successional sowings may be made about every two weeks until the middle of July.

The seed for beets should be sown as early as the ground becomes fit to work in spring for an early crop, and about the beginning of June for winter use. Any good soil will grow good beets. Sow in rows one foot apart. Egyptian Turnip (early), Detroit Half Long Blood (late).

Sow carrots in rows fourteen inches apart in the beginning of May. These should be grown in deep, thoroughly prepared soil of loose, open texture, to admit of even root development. Cultivation should be kept up during the season to continue an even growth. Danvers Half Long is the best to obtain.

Cauliflowers require a cool, rich loam, a northern exposure being most suitable. The growth of this plant should never be checked. For early cauliflower, start seed about the end of March, and it will be ready for the open ground at the beginning of May. Sow seed for late varieties in early May and transplant about the end of June to rows thirty inches apart and twenty between the plants. Variety: Erfurt.

Any good soil will grow cabbage. A warm, sandy loam is most suitable for early varieties, a northern exposure being best for the late cabbage. Start seed and handle the same as for cauliflower. Jersey Wakefield (early), Autumn King (late).

Celery may be blanched by standing boards, ten to twelve inches wide, on their edge at each side of the row close up to the plant. Variety: Paris Golden Yellow.

A warm, friable, rich soil should be chosen for corn. The seed is sown in hills three feet apart each way and four plants allowed to grow to the hill. Sow about the middle of May for both early and late varieties. Golden Bantam (early), Country Gentleman (late).

Sow cucumbers in hills made in rows six feet apart and four feet apart in the row. This should be done in the beginning of June. Allow four plants to develop to each hill. Variety: White Spine.

Lettuce can be grown on any good garden soil. Sow in the open ground as soon as it is fit to be worked. Thin out to six inches apart in rows of one foot. Successional sowings may be made every ten days or so up to the beginning of June. Sow in August for a late crop on well-prepared soil. Variety: Unrivalled.

Onions do best on a very rich loam. Sow in rows on the level ground, twelve inches apart, as early in the spring as possible. Varieties: Mammoth Silver King and Yellow Globe Danvers.

Boys at work preparing for delectable vegetables, at the Irish Boys' Home, Hespeler, Ont.

April Garden Reminders

Canna and Caladium bulbs must be started at once, if they were not attended to earlier.

Plant sweet peas as soon as the ground can be worked. A long row is best. Chicken wire makes a good support.

Always unpack nursery stock as soon as it is received and learn whether it is in good condition or not. It may then be heeled in till ready to plant.

Look after worn spots on the lawn. Manure them well and spade deeply. Rake and sow grass seed.

Some of the Schizanthus hybrids are striking flowers. They may be used as cut-flowers, and always attract attention.

Give boys and girls plots of land for gardens of their own. They will take more interest in things that are their own and perhaps this interest will spread.

Rosa Rugosa bushes should be cut back to within 18 inches or two feet of the ground each year. This keeps the plant smaller and prevents it from becoming rough and unsightly.

If nursery stock is received in a dry condition, thoroughly wet the plants and either heel them in or put them in a cool, moist cellar for a few days.

A good lawn is secured by sowing a thoroughly well prepared, rich soil with 42 pounds of pure Kentucky blue grass, 5 pounds solid redtop and 3 pounds of white clover per acre. Sow as soon as the land can be well prepared, rake the seed in well, and roll lightly.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated The Canadian Bee Journal.
Published by The Horticultural Publishing Company, Limited,

PETERBORO, ONTARIO

H. BRONSON COWAN, Managing Director.

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1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests. The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, and of The Canadian Horticulturist and Beekeeper, $1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising rates, $1.40 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December 1915. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 13,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1915	11,158	August, 1915	10,294
February, 1915	10,942	September, 1915	10,067
March, 1915	10,864	October, 1915	10,017
April, 1915	10,917	November, 1915	9,704
May, 1915	10,927	December, 1915	9,253
June, 1915	10,329		
July, 1915	10,448	Total	124,920

Average each issue in 1907 6,627
Average each issue in 1915 10,410

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not apply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honorable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

Home Markets Shrinking

Most of us are so busy seeking methods of overcoming the daily problems that require our personal attention it is ofttimes difficult for us to realize that our prosperity may be almost equally wrapped up in the proper solution of larger issues directly affecting the welfare of the nation, and even nations, of which we form a part. Yet the fact is, there are social and economic issues pressing for speedy adjustment on this continent which, if not dealt with in time, may overwhelm our much-boasted twentieth century civilization.

Attention was drawn on a previous occasion in The Canadian Horticulturist to a remark made at the Dominion Fruit Conference, two years ago, by Mr. Elmer Lick, of Oshawa, during a discussion of home markets. In effect Mr. Lick said: "The disturbing fact that confronts us, when we study the possibilities of our home markets, is the large percentage of the people who are not able to buy apples at any price." This condition is one of far-reaching importance to the fruit grower. If the proportion of our large urban population which can purchase fruit is increasing from year to year, then the outlet at home for our fruit will increase in proportion, and many of the disastrous effects now expected to result from the heavy overplantings of the last few years may never occur. Should it be, however, that the proportion of people who are unable to buy fruit is increasing steadily, even if more or less unobserved, then our markets will be correspondingly curtailed and the benefits it is now expected will result from the adoption of cooperative methods and improved principles of orchard practice will be largely annulled, and conditions may even grow worse instead of better.

Steadily for several years back the difficulty of finding profitable markets for our fruit has been increasing. Everywhere fruit growers are awakening to the menace of this new condition. A few years ago almost the only subjects discussed at the annual conventions of fruit growers were those which related to methods of cultivation and orchard practice. To-day questions of marketing monopolize the attention of those who attend these gatherings. Mr. Bush, of Morton, N.Y., expresses the situation very clearly in this issue in his statement that "it is not a question any longer of how to grow good fruit, or how to increase the yield; it is a question of how to sell it."

The fact is, as students of economics have noticed for some years, the proportion of people able to purchase fruit is rapidly declining. This is due to the fact that wealth is just as rapidly concentrating in the hands of the few. The wealthy are growing more wealthy; the poor, poorer.

Because of the increasing social unrest which has been leading to costly and bloody strikes in the United States, the government of that country, some two years ago, appointed a commission of experts to investigate conditions and report as to needed remedies. The report of this commission has been made public. It reveals an alarming condition. The national government is warned that unless it addresses itself wholeheartedly to the adjustment of conditions the welfare of the nation will be imperilled. We have not the exact figures beside us at the moment, but according to this report approximately 60 per cent. of the wealth of the nation is controlled by 5 per cent. of the population, and 35 per cent. of the wealth by 30 per cent. of the population. The remaining 60 per cent. of the population controls only 5 per cent. of the wealth. In some large industries as high as 37 per cent. of the men employed are unable to earn enough to support their families. This condition has compelled their wives to work in order to earn enough to maintain their families. In New York over 90 per cent. of the people do not own their own homes, and 9 per cent. of those who die are buried in paupers' graves. These conditions do not apply only to the urban population. Tenancy is increasing rapidly among the farmers. In some counties as high as 70 per cent. of the farmers are tenants, and in some states over 50 per cent. are tenants. Startling evidences of degeneration are appearing in these communities.

It will not do for us to say that these conditions apply only to the United States. Such a statement would not be true. The same forces which have been working in the States are operating in Canada. They have been the cause of the slums which of late years have become a feature of such cities as Montreal, Toronto, Winnipeg, and even of some of our smaller cities. We have not space here to refer to the remedies recommended in the report of the United States commission already referred to. Mention will be made of them later. We must first recognize and admit the existence of these conditions and the influence they are destined to have on our welfare before we will be willing to consider the radical remedies that have been proposed for their removal.

Protect the Plants

With the advent of spring an uncontrollable desire seizes upon thousands to wander forth from the towns and cities of our land into the woods and dells in search of the beautiful wild flowers that make the leafy spaces glorious. We all sympathize with this feeling for we have all felt and given away to it and hope to do so again, many times in the future. The unfortunate feature of it is, however, that many of those who thus go forth pick the graceful denizens of the wood for the mere passing pleasure of carrying them home. It does not seem to occur to such that their acts may destroy the plants and even help to result in their extinction as a species.

Already in Canada there are many fine groves of trees in which wild flowers used to bloom profusely but from which they have disappeared forever through the careless actions of the thoughtless flower hunter. Most people who love a flower well enough to seek and pick it in the woods, love it well enough to refrain from picking it if shown the harmful effects likely to attend such an act. There is a great educational work to be done.

We would like to see horticultural societies this spring throughout the length and breadth of Canada take steps to protect our native wild flowers. Now is the time to do it. Notices inserted in the local papers, signs posted in the woods, talks given to the children in the schools and even the passing of bylaws by municipal councils and park commissioners would be attended by valuable results. Who will enlist in the campaign this spring to protect the flowers we all love?

Patriotism and Production

The hearty response that was made by the people of Canada last year to the "Patriotism and Production" campaign showed how deeply the hearts of the people were moved. This year it is going to be difficult, in fact, impossible, to obtain results equal to those achieved a year ago, because of the shortage of labor. This makes it doubly necessary that everything possible shall be done to increase the efficiency of those who remain. Every possible handicap should be removed which tends to decrease production. One of these is the duty on fertilizers.

An orchard or field well enriched may easily produce two and three times the crop for the same amount of labor as another field depleted in fertility. Anything, therefore, which will make it easy for fruit growers to add fertility to their soil will enable them to double and treble the returns for their labor. The tariff now in force in Canada on fertilizers is ten per cent., which is equivalent to an average of about three dollars a ton. In 1914 Canada imported from the United States fertilizers to the amount of $752,357, which yielded a revenue of about $75,000. The revenue derived on importations from other countries was small. From the standpoint of revenue the duty is of comparatively little value to Canada.

According to the "Agricultural War Book" Belgium used two hundred and twenty-four pounds of concentrated fertilizer per acre of cultivated land, Holland one hundred and eighty pounds, Germany one hundred and fifty pounds, Great Britain seventy pounds, the United States sixteen pounds, and Canada only three one hundredths of a pound. Surely this is proof that the use of fertilizers needs to be encouraged in Canada. We hope the Dominion Government will remove the duty before the present session of parliament prorogues.

Horticultural societies which are planning to hold exhibitions of flowers this spring might well follow the example of the St. Thomas and other horticultural societies which give the flowers shown at their exhibitions to the hospitals for distribution. With the flowers the St. Thomas society distributes the society sends a little card reading somewhat as follows: "To Miss Blank, Amasa Wood Hospital, with the compliments of the St. Thomas Horticultural Society, hoping for your speedy recovery." Kindly little acts like this are long remembered by the recipients and nothing does more to popularize the work of our societies among the sick who receive these floral reminders and their friends.

PUBLISHER'S DESK

The front cover illustration on this issue of The Canadian Horticulturist will, we trust, strengthen the determination of all who see it and whose means permit of their doing so to have a beautiful garden this spring. We may not all be able to have a lily pond but even the most humble home may have at least a few flowers. If our front cover illustration results in the strengthening of the love of flowers in the hearts of only some it will have accomplished the purpose for which it was intended.

* * *

It is not necessary that we shall call attention here to the helpful, timely articles that feature this Fifth Annual Spring Gardening and Planting Number of The Canadian Horticulturist. The articles speak for themselves. An earnest effort has been made to give our readers information that will be inspirational, practical and helpful. We trust that this number will meet with the same measure of approval as have the four preceding annual issues of this character.

* * *

Year by year greater and greater efforts have been put forth by horticultural societies throughout Canada to interest school children in the growing of flowers. Each year large quantities of seeds and plants are distributed free and prizes are offered for competition among the children. This has created a demand for simple, practical directions in the growing of flowers which can be furnished to the children. The Canadian Horticulturist is planning to publish a series of such articles through the summer and to have these printed in pamphlet form at a minimum of expense for distribution among those horticultural societies which desire them. They will be written by some of Canada's best known authorities who are also lovers of children. Within the next few weeks we trust to have our arrangements for their publication completed, in order that the first of the articles may appear in our May issue. Full particulars will appear in this column next month.

* * *

Are you doing what you can to introduce The Canadian Horticulturist to your friends? A few words of commendation of The Canadian Horticulturist to a friend may be all that is required to induce him to subscribe for a year or more. In this way you will not only be able to help your friend but to extend the field of usefulness of the only horticultural magazine in Canada that is working for the promotion of the fruit and floral interests of the country. Let us have your co-operation. It will be appreciated.

SOCIETY NOTES

Peterboro

The annual announcement of the Peterboro Horticultural Society is a demonstration of the splendid work being done by many horticultural societies. Four free premiums are given to all the members, including a yearly subscription to The Canadian Horticulturist, participation in a fall distribution of Dutch bulbs, consisting of six hyacinths, six daffodils and six paper white narcissus, the annual report of the Ontario Horticultural Association and a choice of any one out of eleven options. Among the options are fifteen Gladioli corms, choice mixed; six salvia plants, five perennial larkspurs, five double hollyhocks, and one ounce of Spencer's Sweet Pea Seed. This society has charge of the work done in the city parks. A special committee of the society looks after this work with the sanction of the city council. Garden and lawn competitions are also held.

Hamilton

An illustrated lecture on "Intensive Cultivation" was given in the lecture hall of the Old Library Building on March 17th, by Mr. F. G. H. Pattison, of Winona, Ont., the editorial representative of The Canadian Horticulturist in the Niagara District. The address proved most interesting. The society has about completed arrangements for the distribution of its spring premiums.

* * *

The following reports of work accomplished last year by the horticultural societies mentioned were read at the last annual convention of the Ontario Horticultural Association by Mr. Lockie Wilson, Superintendent of Horticultural Societies:

Amherstburg

Options were given to members, flowers and shrubs supplied for beds in the park and all parts of the town, and these kept in order by the society. The Town Council made a grant of $60.00 and the County Council $25.00 towards the work.

Barrie

A new feature taken up last year was a sweet pea show, which was so successful that it will be repeated in 1916. A similar one for tulips and paeonies is also intended. The exhibits are placed in a large store window so as to be seen by all who pass. The annual exhibition was very successful, the attendance being larger than in 1914 and entries equal in quality.

Belleville

The work of this society has been planting in the beds in the Queen Victoria and Corby Parks last fall of tulip bulbs, and this spring of plants. Distribution of seeds to the public school children in the spring. A flower show was held in the Queen Victoria School on September 29th, from seeds given to the children. Although late in the season the show was a success, and the children of all the different classes took an enthusiastic part in it. The society has succeeded in having all of the public school teachers take a personal interest in this department of horticulture.

Berlin

The usual outdoor competition was held and outside judges procured. The competition becomes keener each year, and the general appearance of the city shows the efforts of the society to be beneficial. The children's garden work was continued and the interest taken by the teachers was shown in the improved work of the children. The Annual Exhibition held on August 25th and 26th was better than ever, and in all classes the exhibits were an improvement over those of the previous year. The children's classes were well filled with the product of the seed distributed by the society, as well as those open to the various products of the gardens. The increase in the gate receipts was a sign that the general public are interested in the work and the Directors feel encouraged with the showing. Many of the factories are doing some planting around their premises as a result of the work of this society, and the cemetery was much improved this year through the endeavors of the president, who has a seat in the council.

St. Thomas

Attention is called to an advertisement that appears elsewhere in this issue, as well as to a small reading notice relating to the St. Thomas horticultural society. The latter reached us too late for insertion on this page. They indicate the good work being done by this society.

"Experiments with Cabbage" is the title of Bulletin No. 137 issued by the Pennsylvania State College of Agriculture, Centre County, Pa. The bi-monthly Zoological Bulletin of the Pennsylvania Department of Agriculture, Harrisburg, Pa., deals with insect pests and the lime sulphur solution in the issues for September and November, 1915.

Success and Failure in Cold Storage*

S. J. T. Bush, Morton, N.Y.

THE cold storage business is of great importance to the fruit industry, but is very little understood or appreciated by growers generally. If it were not for the cold storage houses holding the bulk of the apple crop every year and permitting it to be placed upon the market gradually, there would be mighty little "present," to say nothing of a future, to the apple industry in the United States.

The common storage limit is usually February first, but in chemical plants it is common practice to successfully hold apples into May and June. Just consider for a moment what the conditions would have been in 1914, with the enormous crop, had it been necessary to market it all by February first. As it was, we were able to sell "A" grade Baldwins from cold storage early in June for $6.00 and $6.50 per barrel, and got as high as $4.00 for "B" grade.

My experience in the storing of apples has not been extensive, although I am now very much interested in that business, having organized a company two years ago and built last year at Morton, N.Y., what is conceded to be one of the finest and most up-to-date plants in this country. Our idea was from the start to make it a GROWERS' storage, and we have among our 125 stockholders practically every grower in that vicinity. To begin with, this gives us enough apples produced by our own stockholders to fill our 60,000-barrel plant in any ordinary season. We did not get the plant completed in time to use it last year, but being of reinforced concrete construction, this was really a good thing, as the building had nearly a year to dry out and was in the finest possible condition when we commenced business in August. Building operations should begin not later than April first on a plant of this kind if it is to be ready for use in September or October.

We spent three months and hundreds of dollars in travelling about the country inspecting various plants, interviewing owners and managers, and consulting with manufacturers of refrigerating machinery. Our idea is that the place for economy is in operation of a plant and not in construction, and we carried through the project from start to finish with the idea of getting the best that money would buy.

We were told by cold storage engineers that 100 horse power was altogther sufficient for our requirements, but we installed three 75-horse power units; we were told that two inches of cork insulation was sufficient, but we put on four inches, in two 2-inch sheets with broken joints; we were told that one system, i.e., the direct expansion ammonia system, was all we could possibly have any use for, but we, in addition to that system, installed the most elaborate cold air circulating system to be found in any plant in this country. This gives us two separate and distinct refrigerating systems, enabling us to carry a wider range of commodities and to keep the air in all rooms sweet and pure at all times —carry off the accumulation of gases thrown off by the fruit and prevent the "pocketing" of dead or foul air in any of the rooms.

We were told that it was possible to build a 60,000-barrel house at a maximum cost of $1.50 per barrel of capacity, but we found that a first class plant of the capacity mentioned cannot be built for a cent less than $2.00 per barrel, and for a plant as complete as ours the cost is $2.50 per barrel.

So far as I know, ours is the only plant in the country using producer gas for power —also the only one of its size using a maximum of one ton of coal per day. Other plants of similar capacity in Western New York use from four to six tons of coal daily.

The fact that we are now able, with the plant filled to its utmost capacity, and with carloads of fruit coming in and going out daily, to hold our temperatures without variation and only operate one engine and one ice machine from two to six hours of each twenty-four, is sufficient justification for our heavy expenditure for the best possible insulation. Our plant being absolutely fireproof, there being no wood about it except the refrigerator doors, we enjoy an insurance rate of thirty cents against a rate of from $1.00 to $1.75 (usually the latter figure) applying to other plants in the State.

As fruit growers, having experienced in common with our friends in other sections and States the most inefficient refrigeration service on the part of the railway companies, we decided to have our own ice plant and manufacture our own ice and ice our own cars. This feature has proven to be one of the most satisfactory as well as one of the most profitable features of our proposition. Instead of being compelled to accept a refrigerator car that had been iced inadequately and improperly from twenty-four to seventy-two hours before we got it, and being forced to pay for all the ice the bunkers could hold, notwithstanding the fact that we never got it, we are able to ice our cars to capacity with a far better quality of ice than that supplied by the railway company, and at a lower cost, and when our cars leave Morton the bunkers are full, instead of from one-third to three-quarters empty as in the past.

In building our plant, we had in mind its enlargement at the least possible cost as soon as conditions warranted the outlay. We can double the capacity now without increasing our power plant a single horse power.

We manufacture our own electric current for the operation of two large thirty-barrel elevators, hoisting machinery, lighting system, pumps, grading machines, air circulating system, etc. We also expect to furnish light for the village of Morton as soon as we can get to it. We operate mechanical fruit grading machines for our patrons in large, well-lighted, convenient packing rooms by electric power.

The establishment of such a plant in a large producing section is of inestimable value to the growers. It makes them independent of the "dealer" or speculator. When harvest time arrives, they know that they have as good a place in which to hold their fruit in case the market is unsatisfactory as the dealer can have. It is really worth, conservatively speaking, fifty cents per barrel on their entire crop.

If the grower needs money with which to pay his help and running expenses, he can do just what practically all the dealers do, take his warehouse receipts to his bank and get an advance of from 50c to $1.50 per barrel and hold his fruit until the market suits him.

Another great advantage to the growers in having such a plant is the facility it affords for the accumulation of small lots of fruit into carloads, which is precisely what the dealer does—precooling it as it is collected and shipping it out in the very best possible condition to carry well to market.

We are particularly fortunate at Morton in having an apparently inexhaustible supply of sweet, pure, cold water, obtained from wells within one hundred feet of our engine room. Ability to use this water direct from the wells at a temperature of fifty-one degrees, and allow it to run away, increases the efficiency of our ice machines about forty per cent.

As I have said, our proposition at Morton is a growers' proposition. Three years ago I organized the Eastern Fruit and Produce Exchange, with headquarters at Rochester, which supplies our growers with the most complete sales machinery. Next came the cold storage plant, and now we are organizing a bank, and in due course will come the cooper shop, canning factory, dehydrating plant, and vinegar factory, with coal sheds and fertilizer and basket storages.

We are after every nickle that is to be obtained from our business.

We believe that duty and common sense demand that we do our own speculating, and that when it comes to a division of the proceeds and profits obtainable from the results of our toil and investment, that division should be with our own families, and not with those who have taken no risk, borne no hardships, and suffered no anxieties as the seasons have come and gone.

One of the things that surprised me and vexed me greatly when I was trying to collect definite information upon which to base plans for our plant was the great difficulty experienced in finding anyone from whom positive and reliable advice could be obtained. If we had not been possessed with a determination to know all the "whys and wherefores" before going ahead with our plans, I hate to contemplate the mistakes we might have made.

There are so many things done absolutely wrong in many of the plants we visited that I am impelled to utter a friendly warning to my fellow growers and to extend to them all an invitation to visit our plant at Morton and to secure from us the benefit of all that we have learned at a cost of much time and money. We will be only too glad to be of assistance.

There are a few "donts" that occur to us as worth while to pass along to our friends who may soon or sometime be interested in the building of a cold storage plant.

1. Don't use wood—use reinforced concrete, because of the low insurance rate, low cost of upkeep, and lack of depreciation.

2. Don't use granulated cork, as it is of little value as compared with sheet cork.

3. Don't allow the contractor to use steel nails in putting up the sheet cork insulation, as has been done in many, if not most of the plants throughout the country, because it is a perfectly absurd performance and largely destroys the value and efficiency of your insulation. Use nothing but wooden nails, as they are non-conductors. How anyone possessed of any common sense could be induced to pay from $25,000 to $30,000 for high-grade insulation and then permit workmen to literally fill it full of holes, which is really what happens when the cork is fastened in place with thousands of steel nails, is beyond our comprehension.

4. Don't make the mistake of having too little packing room space.

5. Don't build your plant so that the long way of your cold rooms will be away from the railroad, but rather have the trucking distance just as short as possible. Labor in handling such a plant is a very large item. At Morton this year we have operated our plant with one-half to one-third the number of employees that are used in plants of similar capacity in western New York.

6. Don't make the mistake of having nar-

* An address delivered at the recent annual convention of the Niagara District Fruit Growers' Association.

row shipping or receiving platforms—it will be found that sixteen feet is none too wide, and the longer they are the better; and so far as it is possible have them covered. Service is the thing to be considered first, last, and all the time.

7. Don't keep your patrons waiting—have facilities for unloading half a dozen cars and wagons at the same time.

8. Don't undertake to operate your plant with a short stub switch, but have a track (on your own land if possible) that will hold twenty-four or more refrigerator cars, and which has double ends, so that the cars may pass the plant for loading or unloading and not have to be pulled out where they came in, and thus cause all sorts of delay and inconvenience. With your track on a very slight grade, you can easily start the loaded or unloaded cars on their way as soon as they are ready, in case there is no shifting engine available, and there never is, at all times.

9. Don't have your air ducts built of anything but wood, as metal air ducts will sweat and drip and cause much trouble and annoyance; and don't let anyone talk you out of installing a cold air ventilating system, because it is one of the important things to have in connection with any cold storage plant.

10. Don't let anyone talk you into piping your house at a ratio less than 18 to 1, and if you are going to handle peaches or other fruits that do not call for temperatures lower than 34 degrees, do not have the pipes in rooms that are to be held at 34 or above hung on the ceiling, as they will drip and cause you all kinds of trouble; but have them hung on the side walls, one above the other, so that one drip pan will catch and carry off all of the drip and prevent it getting on the fruit. The cold blast system is much the best for peaches.

11. Don't build your plant where the drainage is poor.

12. Don't build a house without means of passing from one side to the other without opening doors to cold rooms. Our plant is the only one that I know of that has a passage way from one side to the other which permits employees to get quickly across the building without opening and closing cold room doors a hundred times daily in the busy season; this feature is of inestimable value.

13. Don't forget that different kinds of products require that they be held at different temperatures, and that, as an illustration, Twenty Ounce apples will freeze solid in a room where Baldwins will not be even touched. Unfortunately, you will not find anyone to tell you all these things; the manufacturers of ice machines ought to know all of these things, and do know many of them, but they seem to be principally interested in selling their machines and don't trouble themselves to put you wise.

14. Don't have any windows in your cold rooms, the air ducts will give all the ventilation required and the best; and be sure to have vestibules and curtains at entrances to the rooms that are used the most; and, finally, don't get the idea that it is an easy or simple matter to raise $100,000 or $150,000 in a rural community, or that as a grower you can afford, from a business standpoint and a matter of self-preservation, to refuse to go in with your neighbors and fellow fruitgrowers to the extent of your ability and secure for yourselves the facilities and advantages I have outlined.

If your apples are going into cold storage at all, they should if possible go in the same day they are picked, and in any case with the least possible delay.

I fully realize that it is not possible to have a 50,000-barrel plant at many points, and while a plant of that capacity is more economically operated than a smaller one for obvious reasons, it is desirable to have these facilities for holding your fruit even though on a much smaller scale, as the advantages and "dividends" to be received are not confined by any means to those received in the nature of stock dividends.

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Did you ever ask a breeder to quote you a price upon a thousand pound packages of combless bees? If you did, you will have noticed that he took his pencil from his pocket and began to figure what such a sale would save him in advertising, postage, office help, etc., and the result would be that he would make you a very close price. Now we have that very close price on one pound packages of bees, and, as is usual with us to charge no profit on supplies furnished subscribers of the Review, none will be charged upon those, but our subscriber will get all the advantage of this good buy. Notice that this close price is not for a late fall delivery, but for April and May delivery—later deliveries at a less price that will be quoted later, or by mail for the asking. Upon this deal we have two big points: First, the price; second, an old experienced breeder who has spent his life breeding bees and queens for the market. We mention this so you will not get it into your heads that this is a "cheap John" lot of goods, but that they are as good as money can buy, no matter what price you pay. The price is $16.00 for ten pound packages of these combless bees, each containing a young untested three banded Italian queen of this season's rearing. Additional pound packages, without queens, one dollar each. For larger lots ask for special price, stating how many you can use and when the delivery is to be made. They are shipped from Alabama, in light, well ventilated cages, by express. Just a word to the wise: Book your order early! Address

THE BEEKEEPERS' REVIEW, Northstar, Michigan

telligence and the ambitions of men. Let us accept the responsibility that goes with our calling and bend our efforts to the improvement of all conditions affecting our lives and our business.

With our faces turned toward the morning, and our wagon hitched to a star, let there be a common bond of sympathy and interest stretching from every farm on every hillside, plain, and valley of this broad Dominion to every other farm and fireside, carrying and embodying good cheer and fellowship among all the sons and daughters of agriculture and horticulture, to the end that your calling may be dignified, your living made easier and better, and your lives nobler and purer as they are lived close to Nature and Nature's God.

The Effect of the Increased Duty

Editor—The Canadian Horticulturist: I have read with interest your editorial in the March issue of The Canadian Horticulturist upon the increased duty upon apples, and desire to express my belief in the correctness of your view. While the increased duty will give some temporary relief to the growers of British Columbia, it will not be of permanent benefit. Not only will the financial benefits be capitalized upon the value of the orchards, but it will act as a hindrance to prevent the removal of the real handicaps which burden the development of all land property in the great province.

Our protective tariff policy imposed a greater burden upon the agricultural progress of British Columbia than upon that of other provinces, owing to the expense of irrigation in the dry districts and the high cost of clearing the heavily-timbered parts of the coast lands and other districts. The high cost of living during years of bringing the land under cultivation, and the necessity for intense cultivation of the available lands, has led largely to the growing of truck crops and of fruits, the perishable nature of which—or the competition of which from local points—makes it a practical impossibility to obtain any fair return in the provincial or prairie markets open to them.

Not only has this prevented profitable results, but the high tariff caused a special injury to the fruit industry (1st) by encouraging the dishonest booming of land, (2nd) by leading growers to engage in reckless planting of all kinds of fruit of almost every variety known, which too often was planted so close together that proper development was not possible, until one marvels at the folly and waste of a large part of British Columbia orchards.

The high tariff was used to bolster up the prohibitory railway and express charges which have seriously militated against the well-being and progress of the province.

Two illustrations may make my argument clear. Freight charges last year on commercial fertilizers from Victoria to Summerland, on Lake Okanagan, were $18.00 a ton, making the cost of superphosphate about $40.00 a ton, while here it was bought for $22.00 a ton; and ground rock phosphate was delivered for $9.00 per ton by the carload from Tennessee. Grain from Calgary points to British Columbia buyers in the interior or at Vancouver was charged 19c freight per bushel for distances of 500 to 650 miles, while from Calgary to Fort William, 1,227 miles, the freight was 13 3-10c per bushel. In such ways high tariffs have worked to cause that province far greater losses than the extra price it has brought to fruit growers could begin to pay for. My conviction is that only after high tariffs are removed will the Pacific Province fully come to its own.

I believe that a fair competition with the Oregon and Washington fruit growers would in the result be better for the growers of British Columbia than protection which in the end costs more than it benefits.

Yours truly,
HENRY MOYLE.

The Fall Packing and Exhibition Number in September of The Canadian Horticulturist was the best magazine I have ever seen. It gives a good account of the month's work in the garden.—H. A. Nicholls, F.R.H.S., London, Ont.

"POUNDS OF BEES"

To the practical Beekeepers of Canada. Past experience proves to us that it does not pay to sell bees in pound packages earlier than May 1st, but after that date, which is just after our Orange Blossom flow, finds our hives full of young bees and sealed brood. So we can offer bees after May 1st, 1 pound, $1.50; 5 pound lots, $1.25; 10 pound lots, $1.00 per lb. In lots of 100 pounds in separate pound packages, 90c. per pound F.O.B. Rialto, Cal. Untested queens to go with them, $1.00 each, $4.25 for six, $8.00 per dozen; $60.00 per 100, or queens by mail at above prices. Safe arrival and satisfaction to all customers. Express charges to or near Toronto, around 25c. per pound in lots of 10 or more at one time.

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Canadian and U.S.A. bred queens and bees. Bees by the pound or colony.

A. E. CRANDALL & SON,
Berlin, Conn.
"Quality" Italian Queens.

JOHN A. McKINNON,
St. Eugene, Ont.
Best northern bred stock.

WM. ATCHLEY,
of Mathis, Texas.
Wants to sell you your early bees by the pound. Queens in season.

J. W. K. SHAW & CO.,
Loreauville, La.
Everyone knows their strain of three-band Italians.

Better Net Returns

C. F. Howard, Hagersville, Ont.

One of the prime factors in securing better returns for our apples is in maintaining a uniformity of pack. If the consumer can rely upon the stamp on any brand or package to mean uniformity of pack, it will mean a greater demand for our product. Herein lies our greatest weakness, so far as our local Association is concerned. Each member is responsible for the packing of his fruit according to a set of rules laid down by our association, and of course under a rigid inspection, yet there is a far greater variation in grading and packing than there should be. We have endeavored by means of educational work along the line of packing demonstrations and packing schools to overcome this difficulty, and I may say that they are improving the condition to a considerable extent; but, because of the fact that orcharding is mostly a side line in our district, the necessary attention is not given to this work that there should be.

Also, we can increase our net returns greatly by increasing our percentage of No. 1 fruit. The past two or three years have been off years with us, for the growth and spread of the apple scab has got beyond our control to such an extent that the profits have been practically eaten up. Last year we left over 40% of our apples in the orchards, a large part of them being No. 3's, and practically all undisposed of. This year we were hit harder than ever, but fortunately by the introduction of the new apple box, which we made use of, we disposed of our entire crop to good advantage. But I maintain that our growers must study to produce a very high percentage of No. 1 apples in order to realize profits on their apple crop.

In regard to the marketing of our crop, I may say that we have grown up with the Co-operative Fruit Growers of Ontario, Ltd., having been one of its units since the year of its organization. I am an out-and-out supporter of cooperation, and believe that therein lies the solution of our marketing problems. Our association is small, not yet producing 5,000 barrels of apples. To place this amount on the market individually would make it necessary to handle them through a middleman or the ordinary channels of the apple trade. We would also have, separately, to carry the risks involved in shipping and of collecting payments. This has meant a good deal to our association already, for we have saved the loss of a part payment on a car of apples, and the central is now fighting the railroad on the partial loss on another car. In unity there is strength, and the central organization can aid very greatly in these matters, especially the smaller associations.

The control of the market is essential if we are to get better net returns. This does not mean a control that will squeeze the consumer. We must bear in mind that our product is more of a luxury to many than an actual necessity. I mean a control in fairness to the producer as well as consumer. Such control can only be accomplished through provincial wide cooperation. It is utter folly for producing organizations to go out on the markets and compete one against the other. This state of affairs only places us at the mercy of the shrewd dealers.

Again, I claim that through organized effort we are in a better position to direct our product to the markets where prices rule highest, without the usual result of a glutted market and a slump in price. Even

* A paper read at the last annual convention of the Ontario Fruit Growers' Association.

QUEENS
REARED IN CANADA
From the BEST Italian Stock
$1.00 Each; Six for $5.00
P. TEMPLE
438 Gladstone Ave. TORONTO, ONT.

FOR SALE
Leather Colored Italian Queens
A few choice breeding queens at $10.00 each, spring delivery. I guarantee these queens to be as good as any imported queen, barring none. If purchaser is not satisfied after one year's trial return queen and I will refund the $10.00.
Warranted purely mated queens $1.00 each or $10.00 dozen. Untested, after July 1st, 75c each or $9.00 a doz.
A few choice cols, of Italian bees in 9 frame hives at $10.00 per col.
Tested Queens $1.50 each.
JOHN A. McKINNON
St. Eugen - - Ontario

Italian Queens
Three-Banded
Ready April 1, of an exceptionally vigorous and long-lived strain of bees. They are gentle, prolific, and the best of honey gatherers. Untested, $1.00; 3, $2.75; 6, $5.00; 12, $9.00. Tested, $1.25; 6, $6.50; 12, $12.50. Send for my free circular and price list, and see the natural conditions under which my queens are raised. Will book orders now.
JOHN G. MILLER, Corpus Christi, Texas.
Corner C St., and Coleman Ave.

Three Band Italian Queens
They are bred from imported mothers. They are the best for honey producing purpose, very gentle and not inclined to swarm.
If you buy once you will buy always.
Guarantee that all queens will reach you in good condition, to be purely mated and will give perfect satisfaction. All orders filled at once.
April 1 to May 1.

Prices.	1	6	12
Untested	$ .75	$ 4.25	$ 8.00
Select Untested	.90	5.00	9.00
Tested	1.25	7.00	13.00
Select Tested	2.00	11.00	20.00

L. L. FOREHAND,
Fort Deposit, Ala.

Pound Packages and Queens
We have established a Bee and Queen Breeding Yard in the south to handle our growing trade. You should order early to avoid delay. Send order on a postal,—no money until Bees arrive. Delivery begins April 1st. If possible order in 5 lb. lots, it is cheaper in express charges. Satisfaction guaranteed. Price, $3.25 per lb.
CHAS. E. HOPPER & CO., TORONTO, ONT.

in a year of scarcity like last year, such conditions occurred in many of our markets. In a year of plenty we feel the need of extended markets, which can best be sought out by the central.

The publicity of our business through educational propaganda and press agencies can be far better governed with lesser expense through a central head, and eventually return to the producer in dollars and cents. The advertising of the apple and its many uses will lead to a greater consumption. The varieties of apples are very little known by the consuming public. The Spy seems to have found over-ruling preference, even to the exclusion of many other good varieties in their season. We find it difficult to supply the high percentage of Spys asked for in our orders. Most of our orchards were planted by our forefathers, and we find in them a great collection of varieties, which is a sad mistake from a commercial standpoint. Anyone contemplating a new plantation should give this matter of varieties serious consideration.

Possibly one of the greatest means of increased profit to the grower is a closer connection with the consumer. Doubtless the West will ever continue to be one of the best markets for Ontario apples. It will need developing along the lines of cooperation, the west with the east. Agricultural organizations in the west have already been securing a part of their supply of fruit from our cooperative organizations in Ontario. There seems to be an organized effort in the west to defeat any such negotiations. Even our local association, in their own competition for this market, are hampering the trade to a great extent. But the west, with its ever-increasing population, will create a demand for our Ontario apples that, with proper attention, will mean better net returns for our producers. In conclusion, I would say, let us lend ourselves to a more extended system of cooperation, and thereby make for prosperity in our local association work.

Fruitgrower Wins Suit

A case which has been hanging fire for some time, and which is of unusual interest to fruitgrowers in general, has just been concluded in the County Court at Hamilton.

This was an action brought by the Whiting Nursery Company of Boston, U.S.A., against C. Coulson, a Beamsville fruitgrower, for $103, alleged to be due the nursery company for fruit trees supplied him by the plaintiff company.

The defendant, Mr. Coulson, in his statement of the defence, says that after giving the order for the trees, and prior to their delivery, he notified the company in writing to cancel the order. Mr. Coulson also claims that the order was secured through misrepresentation, and because of this, and his notice to the company to cancel the order, he refused to accept the trees when they were later shipped to him, returned the shipment to the company, and refused to pay them.

The plaintiffs state that the order received from Mr. Coulson in writing was marked "not subject to countermand," that the trees were shipped according to agreement, and that the order was not obtained through misrepresentation.

Mr. Whiting, manager of the nursery company, under examination by Mr. Staunton, said he did not grow the trees, but purchased them from a nursery company in Boston, and that the order taken from Mr. Coulson returned the trees to his place the

SWEET PEAS

Keith's Finest Mixed Spencer Varieties. Postpaid 1 oz. 15c—¼ lb. 50c—½ lb. 90c—1 lb. $1.75.

Keith's Sterling Mixture. Large flowering varieties. Postpaid 1 oz. 10c—¼ lb. 20c—1 lb. 70c.

GLADIOLI

Keith's Best Mixture, 30c per doz., $1.50 per 100 by express, or postpaid 40c per doz., $2.00 per 100.

NASTURTIUMS

Keith's Special Mixture of Dwarf Varieties. Postpaid 1 oz. 10c—½ lb. 40c—1 lb. 75c.

Keith's Special Mixture of Climbing Varieties. Postpaid 1 oz. 15c—½ lb. 50c—1 lb. $1.00.

BEGONIAS

Crimson, Pink, White, Yellow. Single 5c each, 50c doz. Double 10c each, 75c doz., Postpaid.

GEO. KEITH & SON

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Start a Backyard Garden This Spring

WHY not decide now to have a garden this spring, and prepare your hot beds at once. In another couple of weeks you should have your seeds such as onions, tomatoes, beets, lettuce, cabbage, and of course a number of varieties of flowers for the flower garden all planted.

Hot Bed Sash 3 ft. x 6 ft. 10 inch glass. Price $1.15

In Clear Red Cypress Unglazed

Hot Bed Sash 8 inch glass Price $1.20

In Clear Red Cypress Unglazed

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MANUFACTURERS ALSO OF GREENHOUSE BARS AND SASH

366-415 PACIFIC AVENUE - - WEST TORONTO

Spraying Pays

SAVES your crop from loss, helps tree and plant to produce better and larger crops, prevents spread of disease, insures a longer life for trees and a longer growing time for vines each year. Blight hit potatoes in many states in 1915—many million bushels lost. Spraying would have saved them.

IRON AGE Sprayers

Include bucket, barrel, power and potato sprayers in many sizes and variety of equipment to suit each man's needs. We want to show you what each one is, how they are made and what they will do. Ask your dealer to show you these tools and write us for booklet describing all of them fully. We also have a spraying guide which we are glad to send.

The Batemson-Wilkinson Co., L't'd, 464 Symington Ave. Toronto, Ontario.

Also Potato Machinery, Garden Tools, Fertilizer Distributors, etc:

The Williams Strawberry

This famous strawberry still maintains its lead over all others in this district as a commercial berry. We have a fine stock of plants for spring setting, and can quote favorable rates on large or small orders. Satisfaction guaranteed. Send for circular.

W. H. BUNTING

The Carleton Fruit Farm, St. Catharines, Ont.

FRUIT MACHINERY CO.

INGERSOLL, ONT.

Manufacturers of the Ontario Power Sprayer Model 2-B, the handiest of them all. Engine fills the tank. Also a complete line of Apple Evaporating Machinery and power evaporator equipment. Our complete power systems for evaporating as we install them are practical, sanitary and labor saving.

Write for free illustrated catalogue on spraying and evaporating.

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THE FENCE THAT STAYS "PUT"

PEERLESS Perfection is one of the easiest fences to erect, because it stays "put." It can be erected over the most hilly and uneven ground, without buckling, snapping or kinking. Every joint is locked together with the well-known "Peerless Lock." The heavy stay wires we use prevent sagging and require only about half as many posts as other fences.

Peerless Farm Fence

is made of the best Open Hearth steel fence wire. All the impurities of the steel are burned out and all the strength and toughness left in. Makes the fence elastic and springy. It will not snap or break under sudden shocks or quick atmospheric changes. Our method of galvanizing prevents rust and the coating will not flake, peel or chip off.

Send for catalog. It also describes our farm gates, poultry fencing and ornamental fencing.

Agents nearly everywhere. Agents wanted in unassigned territory.

The Banwell-Hoxie Wire Fence Co., Ltd.

Winnipeg, Manitoba Hamilton, Ontario

same day that he, Mr. Oliver, delivered them to Mr. Coulson.

Mr. Daley, manager of the E. D. Smith nursery, Winona, called as witness for the defendant, stated that Shiro plum trees, sold Mr. Coulson as special varieties at 75 cents each, were a very ordinary variety and were sold by Canadian nurserymen at 30 cents each. He had examined the trees shipped to Coulson from the Boston company, and found some of them first-class and some others of an inferior quality.

After remaining out nearly two hours, the jury brought in a verdict in favor of the defendant, Coulson.

The Poultry Yard

F. C. Elford, Experimental Farm, Ottawa

Operating the Incubator

A few instructions for operating the machine are given here, but it must be borne in mind that, as a rule, the general directions given by the manufacturers should be followed fairly closely, at least until they have proven unsatisfactory for local conditions. One of the reason why first hatches often are so successful is because rules for operation are closely adhered to, but by the time the operator has run off two or three hatches, he begins to think he knows more than the manufacturers, and makes rules of his own, which are sometimes followed by disastrous results. Therefore, whatever shall be said is to be taken in a general way and not to replace direct instructions intended for any particular make of incubator, but to help out in case these instructions do not prove, in your individual case, the best.

The Temperature.

There are two kinds of thermometers in general use, those that hang up and those that stand or rest on the eggs. Usually 102½ degrees is recommended for the standing thermometer and 103 for the hanging thermometers.

In starting the machine, run it for several days without the eggs so as to insure good regulation, and when the eggs are put in, see that the temperature comes up in a reasonable time. If the hatches are slow in coming off, raise the temperature in succeeding hatches and vice versa. It is a good plan to have an extra thermometer on hand in case of accident, and thermometers should be tested each spring before the incubation season.

Humidity.

Climatic conditions in most parts of Canada are such as to make it advisable to supply moisture. A relative humidity of from 50 to 60 inside the egg chamber gives most satisfactory results. Moisture checks the undue evaporation of the eggs, and, as a rule, the more ventilation that is given the more moisture will be required. When there is no hygrometer to register humidity, a fair indication of the proper amount can be ascertained by watching the air cell. At the first test on the seventh day, the air space ought to be about one-eighth the size of the egg, and on the sixteenth day about one-fourth.

Moisture can be applied in a pan beneath the egg tray, or, in some makes of machines, a wet sponge can be placed above the hot-air pipes with satisfaction.

As a rule, if at hatching time the chicks

Clean up that stony section of the farm with a Bissell Steel Stone Boat. Built of stiff steel with railing around edges; steel runners. Sizes 2, 2½, and 3 ft. wide. Different styles for all kinds of farm and stable work. Write Dept. N. for folder and prices.
T. E. Bissell Co., Limited, Elora, Ontario.
BISSELL STEEL STONE BOAT
See advt. also on page IX.

FOR SALE
Everything from an apple tree to a strawberry plant—shade, ornamental and evergreen trees, ornamental shrubs and vines, roses, hardy flowering plants, bulbs, asparagus—guaranteed stock at reasonable prices. Catalogue Free. Silver black foxes, fishers, mink.
DOWNHAM BROS., Box E, Strathroy, Ont

Strawberry Plants that Grow
Selected plants. All standard varieties $3.50 to $6.00 per 1,000. Send for list.
Ontario Nursery Co.
WELLINGTON, ONTARIO.

Strawberry Plants
Stocky, well rooted plants. Carefully and securely packed for shipment by mail or express. Free catalogue and price list.
S. H. RITTENHOUSE
Jordan Harbor, - Ontario

FREE LAND
For the SETTLER in
NEW ONTARIO
Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.
Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.
For full information as to terms, regulations, and settlers rates, write to
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Parliament Buildings, TORONTO
HON. G. HOWARD FERGUSON,
Minister of Lands, Forests and Mines.

Brown's Auto Sprays Mean Big Crops
Finer fruits, more, better vegetables. Auto Spray No. 1—here shown—destroys bugs, prevents blight and disease. 4 gallon capacity. Fast working, economical. Throws mist-like spray or powerful stream. Cannot clog. 40 styles—hand or power. Get low prices—and valuable Spraying Guide FREE. Address
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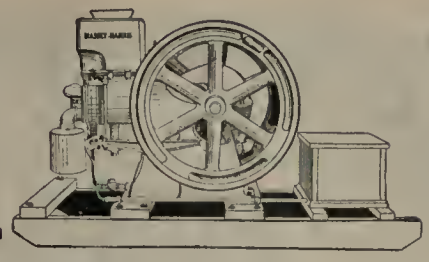

A Reliable and Economical Source of Power

A MASSEY-HARRIS ENGINE mounted on Skids can be moved around to any place where you need help in the way of power.

You will be surprised to find the many uses to which it can be put and the small cost as compared with manual labor, not only around the farm but in the dairy and kitchen, where it does so much to lighten the work of the women on the farm.

And perhaps the most interesting part of it is that an Engine costs nothing in "salary" or "keep" when not running.

Our Catalogue "Farm Power" gives many suggestions for Saving Labor.

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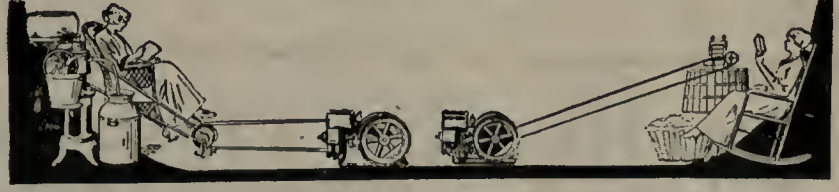

WHOLESALE PRICES
On strawberry plants to the planter. And other kinds of small fruit plants at very low prices. Such as Raspberry, Blackberry, Currants, Gooseberry, and Grapes; also best kinds of Rhubarb and Asparagus Roots. 23 years' experience in propagating and shipping small fruit plants. There are no better plants grown in Michigan. Everything fully guaranteed. Large illustrated and descriptive catalogue free.
A. WESTON & CO., Bridgman, Mich.

Planet Jr. Cultivators

—biggest savers for farm and garden

Why worry along with slow out-of-date implements and meagre results? Planet Jr tools are far more economical—they do 3 to 6 times the work, get bigger, better crops, and outlast several ordinary implements. *Fully guaranteed.* You are actually losing money whenever you cultivate without them.

No. 72 Planet Jr 2-row, 2-horse Pivot-wheel Cultivator saves a man, a team, and a cultivator every day it is used. Cultivates 2 rows of corn, potatoes, beans, etc., at one passage, even if rows are crooked or irregular width. In check rows and listed corn it also beats any other tool. Can be equipped with spring-trip standards, discs, sweeps, hoe steels, and furrowing shovels. **Specially hardened cultivating steels add 50 per cent to wear.** Also spring lift, new this year.

No. 8 Planet Jr Horse Hoe and Cultivator is stronger, better-made and capable of a greater variety of work than any other horse hoe made. Non-clogging steel wheel. Depth-regulator and extra-long frame make it run steady. Adjustable for both depth and width. *15 other styles of one-horse cultivators—various prices.*

New 72-page Catalog (184 illustrations) **free!** Describes over 70 tools, including 12 entirely new ones, and improvements to our Seeders, Wheel-Hoes, Horse-Hoes, Harrows, Orchard-, Beet- and Pivot-wheel Riding Cultivators. **Write us for name of nearest Agency.**

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CENTRAL NURSERIES

For reliable Apple, Pear, Plum, Cherry, Peach and Ornamental Trees, Shrubs, Roses, Grape Vines, Berry Plants, Evergreens, Hedges, etc.—good ones, too.

Also Seed Potatoes.

We ship direct to customers. Our new price catalogue will interest you. Note our offers—they are dependable and O. K.—35 years at it. No agents for us.
Early Six Weeks' Seed Potatoes for sale.

A. G. HULL & SON, St. Catharines, Ontario

STRAWBERRY PLANTS

The Cream of the strawberry world. Only a few thousand each of the following choice varieties to offer. Order early.

"Pride of Michigan" B, "Chesapeake" B, "Donan" B, "Fendall" P, "Kellogg's Prize" P. Price 75c per 100, $5.00 per 1,000.

Two grand everbearing varieties—"Superb" B, "Progressive" B, at $1.50 per 100, $10.00 per 1,000.

Those marked P are Pistilates and should always be planted with Bisexual varieties marked B.

The Mitchell Nursery and Floral Co.

MITCHELL ONTARIO

are dried up and the air space large, too much ventilation has been allowed, or not enough moisture given, or both, and if, on the other hand, the chicks look as though they were drowned and a very little air space is seen, there has been too little ventilation or too much moisture or both.

Cooling and Turning.

From the second day to the seventeenth, the eggs should be turned twice a day and cooled once; in very warm weather they may be cooled twice a day. No stated time can be given for cooling, so much depends upon the temperature of the room and the ventilation and moisture given. In turning, it is not necessary to turn each individual egg over, but rather to shuffle the eggs, and in doing so, work those at the outside to the centre and vice versa.

Testing.

Usually two tests are sufficient, one for fertility and one for dead germs. The test for fertility should take place on the seventh or eight day of incubation. At this time, as the eggs are held before a light the infertile eggs will appear uniformly bright, while the fertile eggs will show a dark spot with a cloudy portion around it. At the second test, which is for the purpose of detecting the dead germs, an egg with a live germ will have an appearance much the same as that on the seventh day, only the germ will appear larger and darker; probably one-half of the egg will appear dark, and the air space will be larger. The dead germ will not be much larger than when seen at the first test, which would indicate that it had not grown as the others had. It also may be stuck to the shell and look like a red streak, or as it is called, a blood ring. All of these should be discarded, as they will not develop into chicks.

Practice only will make one perfect in testing. It is a good plan to crack an egg occasionally to see what is inside, but if you are not sure whether the germ is alive or not, and do not want to break the egg, mark it so that you will know what it looked like when you see whether it hatches or not.

When the War is Over

"We should plan now for the proper exploitation of the European market when the war is over," said Mr. Elmer Lick, of Osh-

You Realize That You *Must* Spray

No need now to talk about spraying to the progressive orchardist of Canada. He knows. The question is, "Which is the best pump equipment?" The saving of a few dollars may prove very expensive. High pressure, large capacity, and long, uninterrupted service, are essential to spraying efficiency. Naturally, these features are not to be found in a cheap pump.

They are found in the **BEAN SPRAY PUMP**

The Bean gives more than one hundred cents of value for every dollar that it costs. The Bean saves time, money and temper. It is the most economical for the regular sprayer.

Let us refer you to people who use the Bean and know its advantages. All sizes, hand and power.

Send for Catalogue and Price List.

The Niagara Brand Spray Co., Limited - - - Burlington, Ontario

EVERYTHING FOR SPRAYING { Soluble Sulphur, Lime Sulphur, Arsenate of Lead, Dust Sprays and Dusters, Hand and Power Pumps and Accessories

awa, past president of the Ontario Fruit Growers' Association, in a recent issue of the Toronto Globe. "Before the war we had begun to develop an outlet in Copenhagen. We should give special attention to that market when peace is restored. Just beyond Copenhagen lies Russia, with its teeming millions, and an almost unlimited market can be found there for our Ben Davis, which is peculiarly well fitted for long-distance carriage.

Hull is another point that should not be overlooked. Golden Russets will do better in London than anywhere else. Manchester is the best market for Spies. These are all points to be considered in connection with the 'after-the-war' situation. A most important point to bear in mind is the necessity of taking the management of our export apple business into our own hands, just as we are doing in the case of our western apple trade."

Packages for Tender Fruit*

J. M. Creelman, Grimsby, Ont.

THE question of fruit packages has been much discussed for some time now, and has led to an estimable aim for the standardization of fruit packages. Needless to say it is a hard question to handle, and, so far, no one has completely coped with it. I do not mean to recommend any standards, but simply to give you the results of our experiments at Grimsby with some packages for the shipments of strawberries, cherries and peaches.

We did not try all the packages used in different parts of this continent. It is hardly possible to test them all at once. However, we did have most of these which we believed to be the best.

I intend to treat this subject only from the standpoint of long distance shipments. The local markets are a different phase, but a package which is suitable for long distance shipments is usually suitable for local disposition, unless too expensive. That is, the local market may not pay a sufficiently remunerative price to pay to pack in such a package.

The points which any package must have to be satisfactory are diverse, but all are essential. First, a package must be strong enough to stand shipment without serious damage to itself or to its contents. Secondly, it must be so constructed as to give the maximum of protection to the contents. Thirdly, it should be attractive in appearance. Fourthly, yes, I put it last on purpose, the cost of the package must not be prohibitive. There is a fifth point which, although not absolutely necessary, nevertheless, is one which should not be overlooked. The package ought to be planned for efficiency in loading and handling. This is a point well worth some good sound thinking. You must also consider the market's demands, but this is of lesser account, because this can be changed by education.

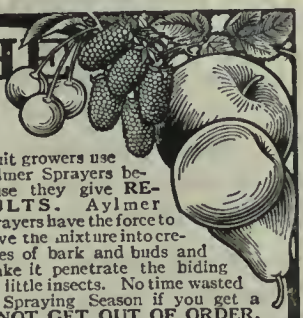
Another thing we must take into consideration is the tendency apparent to reduce the size of fruit packages. We see in the case of apples the tendency is to use the box rather than the barrel. For soft fruits we see an increased use of the six-quart basket where formerly the eleven-quart basket was used nearly altogether.

The twenty-four-quart crate commonly used for the shipment of strawberries in Ontario does not measure up to any of the requirements which we named. It is more or less fragile, often being broken in transit.

* Extract from a paper read at the last annual convention of the Ontario Fruit Growers' Association.

AYLMER SPRAYERS have won Medals and are used by seven Governments

USE THE AYLMER SPRAYER



Fruit growers use Aylmer Sprayers because they give RESULTS. Aylmer Sprayers have the force to drive the mixture into crevices of bark and buds and make it penetrate the hiding places of the destructive little insects. No time wasted on repairs during the Spraying Season if you get a Sprayer that DOES NOT GET OUT OF ORDER. Any man who has had the exasperating experience of having to stop on account of loose "packing" on the pistons, will be glad to own an Aylmer Sprayer. It is the only Sprayer constructed without troublesome "packing." In the Aylmer, the pistons are made tight by three bronze expanding rings, the same as the pistons in automobile engines. This Sprayer is easy to pump and there is no pressure leakage; every ounce of pressure being turned into spray work. Agitators prevent clogging; nozzles are up-to-date; throw full distance and with full power from a stream to a spray. Every part designed to give perfect service. Prices low. FREE GUIDE TO SPRAY MIXTURES sent on request.

Aylmer Sprayer Outfit D

Fig. 176

Pump complete, 10 ft. hose with couplings attached, 2 Friend Nozzles, 1 Brass Stop Cock, 1 Y, 1 long Iron Extension Rod, without barrel, $20.00. Lined Bamboo Extension Rod in place of iron, $2.00 extra; with barrel, $4.00 extra. Shipped prepaid to any station in Ontario.

Aylmer Pump and Scale Co. Ltd.
WATER ST., AYLMER, ONT.

PLANTS

Strawberries
Raspberries
Blackberries
Gooseberries
Currants
Grapes
Asparagus
Seed Potatoes

"GRAND PRIZE," the most wonderful Strawberry we have ever grown, also the best Fall Bearing kinds and 50 other new and standard sorts.

RASPBERRIES, including St. Regis Everbearing, Herbert, Eaton, Haymaker, Royal Purple, Plum Farmer and the best older kinds.

Select list of all the other Small Fruits. Our offerings are the result of 20 years of testing and selection.

Our Green Mountain and Cobbler Potatoes are bright, clean, healthy stock, the right kind to plant.

As we dig our entire fields, the plants we offer are the best grade, and not the little plants dug from between the rows to make paths for the pickers. Those are the "Cheap John" plants.

Our FREE CATALOG contains full descriptions of varieties, cultural directions and much other valuable information. Send for it.

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U.S.S. Soft Centre Steel Moldboards, highly tempered and guaranteed to clean in any soil. Steel beams, steel landsides and high carbon steel coulter. Clevises can be used either stiff or swing. Each plough is fitted especially with its own pair of handles—rock elm, long and heavy and thoroughly braced. The long body makes it a very steady running plough. Shares of all widths—specials for stony or clay land. The plough shown turns a beautiful furrow, with minimum draft and narrow furrow at finish. Ask for catalogue.

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No. 3 Sod or General Purpose Plough. 15 styles to choose from.

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High-Grade Seeds

We especially recommend our "SELECTED STRAINS" of flower and vegetable seeds to those who desire the best. They are sold direct only.

Here are some specials sent prepaid anywhere in Canada.

BEANS: Ferguson's Improved Golden Stringless Wax. Pkt. 10c., ½ lb. 25c, 1 lb. 45c.
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SWEET PEAS: Ferguson's Exposition, 1916 Collection

15 of the finest giant Exhibition sorts in one grand collection, $1.25.

Dobbie's Cream: Best Cream Spencer.
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D. & F.'s Waved or Countess Strain Mixed Sweet Peas, a splendid assorted collection, Pkt. 10c., oz. 30c., ¼ lb. 90c., 1 lb. $3.00.

Write for our big FREE Catalogue on "SEEDS OF KNOWN QUALITY"

DUPUY & FERGUSON
38 Jacques Cartier Square - - MONTREAL

it is a rough, unattractive looking package, and does not, as a consequence, do the fruit justice. It is easily pilfered, and in car lots loads very badly on account of the handles.

Its greatest fault is in the dividers. These are of veneer and rest on the fruit rather than on the boxes. In this way the whole weight of the two upper layers is on the lower ones and the separators resting on the fruit crush it. With this form of separators or dividers it is impossible to fill the cups without crushing, and if not the fruit inspector will have you over the coals for not filling them. It has been found also that the fruit upon shipment settles so that it appears to have been only partly filled Here, again, the inspector may get after a man even when he filled the boxes before shipment.

An experimental shipment was made through our plant last summer by the Vineland Growers Cooperative Company. These berries were in Ontario twenty-four-quart crates and were shipped by Refrigerated Express. Included in the car were lots of the B.C. 4-5 quart and B.C. full pint crates. These are the two packages used by the shipping districts of the western States and British Columbia.

The fruit in the Ontario crates was found to be rather unattractive in appearance The crates were somewhat damaged and the berries were badly settled in the cups.

The B.C. 4-5 quart was in better shape, but here, again, the berries were settled in the cups so as to look as if they had not been properly filled.

The B.C. full pint was in the best shape. The berries were not settled and were bright and attractive, and along with the 4-5 quart this package was much more attractive to look at.

However, it was when the financial returns were examined that the big difference was apparent. It was found that the B.C. 4-5 quart was only selling for 20c more a crate than the B.C. pint, which, in turn, was selling for 10c more than the Ontario crate. Figure that out. The B.C. pint was selling for 10c more than the Ontario twenty-four-quart crate, although it contained only about half as much fruit.

This package, the western full pint, is the one used principally by the shippers of Hood River, Oregon and Spokane, Washington, and British Columbia. It has very largely supplanted the larger 4-5 quart, as it brings higher net returns. In Winnipeg it brings from $3.00 to $4.00 to the wholesaler.

So far I have considered only shipments to the west, where I feel safe in saying that if we are to compete in that market we must use the Pint Hallock Crate.

In the western markets we have a separate and distinct problem. As stated, the Ontario twenty-four-quart crate is unsatisfactory, and is of no use for western shipments. Now, the pint package is not likely to ever find favor in the east, as it is a package for use where high prices rule. Then as for the 4-5 quart, it is also rather doubtful, as the easterners look askance at the raised bottom and call them "cheaters." The package that is more likely to be of use is one of the type of the American crate or our twenty-seven-quart or thirty-six-quart, with thicker stripes in the dividers. This would tend to reduce crushing, and would still retain the cups the market is used to; also this type is larger and more pilfer proof, and is easier to load as it has no handles. Further, it is more attractive in itself and displays the fruit better.

In summing up the strawberry work it seems to resolve itself into this: For shipments to the west use the B.C. full pint

crate, and for eastern shipments we will have to adapt either the American crate or the twenty-seven-quart or thirty-six-quart to our needs.

We assured ourselves by practical experiments in the season of 1914 that sour cherries could be marketed in good condition in Winnipeg, and then we wondered whether we were using the proper packages. This question was also in the minds of the British Columbia growers, and so we decided to test the relative merits of the Ontario six-quart Climax basket and the four-basket plum crate which was used by the British Columbia people.

A mixed carload shipment was made, and a comparison was thus arrived at. There was not much to choose between them as for condition, but there was a difference in returns. The six-quart Climax sold at an average price of 60c, which netted the grower 38c; while the four-basket crate averaged $1.46, which is a net return of 35.1c.

Then there was a factor which cannot be expressed in figures or illustrated, but it was found that the six-quart basket sold much more readily than the four-basket crate.

Further Tests.

Having satisfied ourselves we could ship sour cherries to Winnipeg, we decided to try some sweet ones. Also, we decided to make a package test. With this end in view, shipment was made to Winnipeg in the B.C. full pint, the B.C. 4-5 quart, the four-basket crate, and the Woolverton crate; this last is a crate containing 3-6 quart leno baskets. It was found that the fruit in the best condition was in the B.C. 4-5 quart and pint. The pint also gave the best returns, as it averaged the grower a net return of 14.3c per pound, with the 4-5 quart second with 11.5c per pound.

The Woolverton crate shows itself to be a commendable package for shipment from the field without repacking. I forgot to mention it, but the other packages were all repacked and faced in the warehouse. It comes a close third with an average of 10.3c per pound net. The four-basket crate was a poor fourth, with only a net return of 6.5c per pound.

This seems to be simple, as here we have again the same package as we recommended for strawberries. This package also sold fairly well in Montreal. They do not seem so adverse to taking cherries in it as they do strawberries.

Kansas City Orchard Duster

Made by the Dust Sprayer Mfg. Co., Kansas City, Mo.

The only machine on the market that has been thoroughly tried out in orchard work. Used in all the experimental work carried on by New York College of Agriculture.

Made in all sizes. Send for catalogue and booklet, "How to Prepare Dust Mixtures."

WM. L. TERHUNE General Eastern Agent WATERVILLE, N.Y.

Sole Distributor for the "SUPERFINE" sulphur for dusting.

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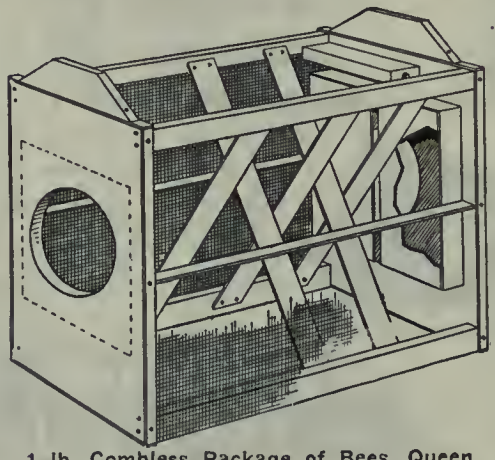
OF BEST ITALIAN BEES

We are now ready to ship pound packages of bees in any quantity from our southern yard at Hayneville, Alabama. First shipment was received March 27th at our Head Office, Toronto.

Each package contains 1 good untested Italian queen and a little more than one pound of bees, to allow for loss en route.

Prices $3.25 per pound package, F. O. B. Toronto.



1 lb. Combless Package of Bees, Queen included. The modern way to ship bees.

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HE TRIED BOTH

L. K. Shourds, of Wellington, Ontario, wanted to be **sure.** He used Lime-Sulphur Solution on half his Orchard, and Soluble Sulphur on the other half. Now he **knows,** and uses SOLUBLE SULPHUR only.

He sprayed for fungus, after it had started. Soluble Sulphur cleaned it out.

SOLUBLE SULPHUR

is not only better than Lime-Sulphur Solution, but it is more convenient. Shipped in powder form in 100 lb. drums. It means less freight—no leakage—no loss—no heavy barrels to handle—Easy to mix—Sticks like paint—Does not clog the nozzles.

Send to-day for price list on SPRAYS and SPRAYERS.

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Everything for Spraying—Soluble Sulphur, Lime-Sulphur, Arsenate of Lead, Dust Sprays and Dusters, Hand and Power Pumps.

Successful is the result of successful **Orcharding** tillage. Cultivate your trees as you would your corn—use an

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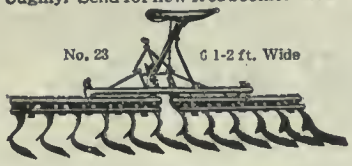
It gets in close under the branches. Cuts, slices, turns the soil twice, levels and compacts—all at one operation. Many sizes—extension and reguiar. Kills small weeds, cultivates deep, mulches thoroughly. Send for new free booklet—*now.*



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Fine and Fit
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When the heavy coat that holds the wet sweat and dirt is removed they get more good from their feed, are healthier and work better. They are more easily kept clean, and their improved appearance greatly **adds to their selling price.** It also pays to **clip the flanks and uddars of your cows—you get clean milk.** Clip them with the

Stewart
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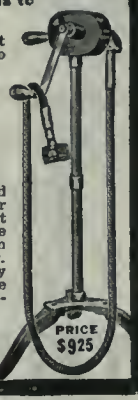

It turns easier, clips faster and closer and stays sharp longer than any other. Gears are cut from solid steel bar. They are enclosed, protected and run in oil; little friction, little wear. Has six feet of new style, easy running flexible shaft and the celebrated Stewart single tension clipping head, highest grade. Price complete **$9.25.**

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SMALL FRUIT PLANTS.
GOOSEBERRIES—Josselyn, Red Jacket, Downing, Pearl, Houghton. CURRANTS—Perfection, Ruby, Cherry, White Grape, Lee's Profile, Champion, Black Naples, Black Victoria, Boskoop Giant. RASPBERRIES—Herbert, Plum Farmer, St. Regis, Cuthbert, Marlboro, Golden Queen, Brinckle's Orange, etc. etc. GARDEN ROOTS, Strawberry Plants, Rhubarb. Write for Catalogue.
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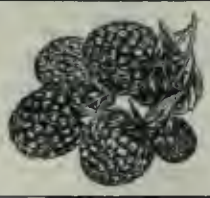

Fire Blight Destroys Thousands of Trees

FIRE BLIGHT OF THE APPLE
IS SPREAD BY APHIS
APHIS CHECKS GROWTH OF TREES
APHIS CAUSES LEAVES TO CURL
APHIS DEFORMS FRUIT
DESTROY APHIS WITH
"BLACK LEAF 40"

Guaranteed 40% Nicotine

Your dealer will furnish you this effective insecticide in concentrated form—200 gallons of spray from the 2-lb. can costs $2.50—1,000 gallons from the 10-lb. can costs $10.75. If he will not supply you we will send it to you, express prepaid, upon receipt of price. Write for Free Bulletins to the address below.

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The KENTUCKY TOBACCO PRODUCT CO.
INCORPORATED
LOUISVILLE, KENTUCKY.

Shipping Immature Fruit*

F. Carpenter

With the results of immature fruit reaching the consumer apparent, is it not a fact that it is difficult to appreciate the amount of damage done to our market by shipping it? Jeliot Coit, of California, states that for every dollar made on green fruit by the extra early shipper, perhaps ten are lost later by conservative shippers through general depreciation of the market. Low prices are caused directly through a few sales of immature fruit.

Who is at fault? Is the grower only to be censored for the shipping of this class of fruit? Or is it the dealer, or both? Does the climate govern the time of picking and maturity? Or does the price? As an example in the past fruit season:—The season was late, the consumers, especially in the west, were asking for grapes, or, in other words, the demand was good. The wholesale houses there wired back to their dealers in the Niagara district offering or guaranteeing a good price. The dealer went to the grower and possibly spurred on by the fact that he could make a good profit for himself before the rush of fruit started, advised him that his fruit was ready for picking and offered him from two to three cents a basket more than he would be likely to obtain when the main crop was moving. Do you blame the grower for taking the offer, and rushing his picking, though he knew himself that the fruit was not in the best condition for consumption? Do you blame the dealer for shipping? There is no law against it, so he possibly concluded that the law favored it.

During the shipping season the average grower or shipper is so busy that in some cases the dictates of his own conscience are apparently overlooked. What is the result? Some consumers will possibly get enough fruit in one basket to do for the whole season; and the whole industry suffers as a consequence. It seems that the righteous have to answer for the sins of the wicked, and that something is wrong when practically worthless fruit brings high prices and good fruit goes begging a few weeks later. Some might claim that the Boards of Health have jurisdiction over such packages on the grounds that they are unfit for human consumption. If the fruit is mildewed, or otherwise diseased or overripe, or covered with scale or fly specks, they might take action; but in so far as the average officer of a Board of Health is competent to judge of maturity in fruit he would be little, if any, better than the average consumer.

Practically all kinds of fruit are more or less affected, some more than others, depending on several factors such as supply and demand, season and ignorance and indifference on the part of grower or shipper. An example of the working of the factor supply and demand could be cited in the case of the sale of Riene Claude plums for green gauges, some two to four weeks before the Riene Claudes are matured. The later the season, the more there is of immature fruit shipped. There are some places in Ontario where they are trying to grow commercially certain kinds of tender fruits where they can be brought to maturity only in favorable seasons. In these places the growth should be discouraged.

The Remedy.

From observations here and in other fruit districts the question appears serious enough to demand a remedy. Co-operation is and will no doubt in the future play an important part in the solution of the prob-

*(Continued from March issue.)

Cheap Copper Sulphate

can no longer be had but growers of *Potatoes, Grapes* and *Vegetables* who have used Sulfocide for the past 5 or 6 years say that they prefer it to Bordeaux mixture as it is chesper and essier to use and equally effective. 1 gallon makes 200 gallons of Spray. Write today for booklet.

B. G. Pratt Company
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GLADIOLUS

Cultural Directions Free.
List of varieties of superior merit.

H. P. VANWAGNER
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PRIZE DAHLIAS

Grown in Canada.
Twenty named varieties, $1.00. Fifteen choice named varieties, $1.00. Ten Giant prize-winners, all correctly named, $1.00. Four different colors, 25c. All are field-grown roots. Postpaid. Send for Catalogue of over 200 beautiful varieties.
MISS G. S. DOUGLASS, Buctouche, N. B.

NEW AND RARE SEEDS

Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalogue free.

Perry's Hardy Plant Farm
ENFIELD, MIDDLESEX, ENG.

Dahlias, Gladiolus and Perennial Phlox

15 choice Dahlias, all different, postpaid $1.15
50 choice large flowering Gladiolus, postpaid 1.15
12 Perennial Phlox, new, large flowering, postpaid 1.15
5 Dahlias, 12 choice Gladiolus, 5 Per. Phlox, postpaid 1.15
Sask., Maritime Provinces, Alberta and British Columbia, postage 5c. extra.

GEO. E. EGERTON,
112 Chalmers St., - - Galt, Ont.

Kelly's TREES — Guaranteed to "MAKE GOOD"

That means a lot to every buyer—guaranteed Sturdy, Healthy and true to name by a firm that has been growing trees right for 32 years—Apple, Pear, Peach, Plum, Cherry and Quince Trees, also Small Fruits and Ornamental Stock.

Direct to You at Grower's Prices

Quality before price is our motto, but our personal supervision of all trees from our nurseries to you, together with up-to-date facilities, enables us to sell Kelly Trees at low prices.

Our catalog tells all about our trees and prices. It is our only salesman, and you can order from the catalog just as well as if you visited us here in Dansville—Why not do both?

Write for catalog to-day—It's worth while.

KELLY BROS., Wholesale Nurseries
143 Main Street, Dansville, N. Y.
You'll never regret planting Kelly Trees.

THE COMPLETE LINE

Harab-Davies FERTILIZERS

GROW BIGGER CROPS

Notwithstanding scarcity of all fertilizer materials and the very high cost of same as compared with other years, we are offering again this year a most complete line of Harab-Davies Fertilizers at very reasonable prices. We can supply you with brands containing up to 3% Potash.

Write for our 1916 Booklet. We will mail it to you promptly, free of charge, and will have our local agent in your locality call and give you further particulars and prices. Now is the time to figure out your requirements for this coming season. Write us to-day.

Made in Canada, by

The Ontario Fertilizers Limited
West Toronto, Ontario

Practical Gardening Tools

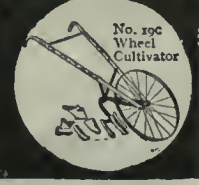
TOOLS like these will do all of the necessary work (except plowing and harrowing) economically, whether for home, farm or market gardens. You can plant certain crops close and straight, and work them close and safely, with wheel hoes. You save ground, save heavy investment for tools at the start and yet do the best kind of work with profitable results.

IRON AGE *Hand Seed Drills and Wheel Hoes*

Will sow, cultivate, ridge, furrow, etc. better than you can with any old fashioned tools and ten times quicker. Pushed ahead a step at a time, these tools can be worked by women, or grown boys or girls. We show here a few only but we make 38 styles and combinations from which to choose. Prices, $3.00 to $14.50. There are also many attachments for special work.

Ask your dealer to show them and write us for booklet "Gardening With Modern Tools." Also, for horse hoes, harrows and cultivators, sprayers, etc.

The Bateman-Wilkinson Co., L't'd 462 Symington Ave. Toronto, Ontario.



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Our nurseries are situated on the table land of the Ottawa Valley. We are the originators and direct propagators of the famous McIntosh Red Apple tree. We do all our own grafting on crab roots, which assures a strong, hardy root system. All of our scions are taken from our thoroughbred McIntosh Red Orchard. Every tree in this orchard was grafted from the original tree that gives the fruit the same beautiful color and delicious flavor as the original. We also grow a full line of other hardy varieties of apple, pear, plum, cherry, small fruits, flowering shrubs, shade and ornamental trees. We never had San Jose scale or any insect pests. Send want list for prices.

McINTOSH NURSERY CO., Dundalk, Ontario

A CORRECTION

From the "Canadian Countryman" Feb. 22, 1916

In our issue of DECEMBER 18, a leading article was published entitled "Fruit Growers Entering an Era of Prosperity," written by Dan Johnson, Dominion Fruit Commissioner. In describing the orchard and operations of B. J. Case, of Sodus, New York, the statement was made that Mr. Case sprayed his orchard three times with a solution of lime sulphur.

In a recent communication regarding this matter, Mr. Johnson writes: "THE ORCHARD OF MR. B. J. CASE, OF SODUS, N.Y., WAS SPRAYED WITH SOLUBLE SULPHUR AND NOT WITH ORDINARY LIME SULPHUR."

Send for Bulletin No. 4, on

SOLUBLE SULPHUR

Niagara Brand Spray Co., Limited, Burlington, Ontario

Everything for Spraying:—Soluble Sulphur, Lime Sulphur, Arsenate of Lead, Dust Sprays and Dusters, Hand and Power Pumps.

Parsons' Strawberry Plants for Sale

It is an established fact that the "Parsons" have become a universal favorite at the canning factory and at the home, possessing many good qualities, viz., a vigorous grower, excellent flavor and exceedingly productive. This season's stock comes from a piece of new ground (the first strawberry plant crop), therefore will be free from all plant disease. These plants will be carefully packed in slatted crates, with plenty of moss to protect roots. Shipped by express to any address in Canada. $3.75 per M. F.O.B. Niagara Falls, Ont. Cash with order.

A two-acre field of strawberries 5 months after setting the plants.

R.R. No. 3, Portage Road, W. E. FITCH, NIAGARA FALLS, Ont.

lem. A manager of a co-operative association, if he is sincere, and working for the best interests of his members, will ship a class of goods that will meet with the approval of his customers and this will barr immature fruit. However, in order to be of immediate benefit to the industry it appears as if some prohibitory legislation should be enacted. A law regulating it, though it might seldom be necessary to enforce it, might have a good moral effect on the grower and shipper. I am indebted to Professor Crow at Guelph for information in regards to its regulation in other fruit districts. In Florida there is a law regulating the maturity of fruit for shipping, which allows only a maximum acidity according to the kind of fruit. It is a comparatively easy acid test which can be performed by any one who has the equipment and follows the directions. For example: Florida grapes packed for table use shall be well matured and show a sugar content of not less than seventeen per cent. Ballings scale, etc. As to bringing a law of that nature into effect here, it appears to me that considerable experimental work would have to be done to determine the maximum acidity to allow in the different kinds of fruit. A general discussion by the growers, shippers and others will possibly be a means of solving the question.

Fruit Notes

F. G. H. Pattison, Winona, Ont.

The outlook for the sale of the 1916 crop of apples does not appear to be very good, as far as the export trade to Great Britain is concerned. Even if apples are accepted for shipment, the delays all along the route and the high freight rates will be almost prohibitive for Ontario apples. Probably Nova Scotia will continue to ship to Great Britain, as their freight rates are lower. They have a much shorter haul, by their own steamers, and can control their shipments better. Should there be a large crop, as is quite probable, the home market will be scarcely large enough to consume Ontario's entire product, except at a moderate price. The Western market, however, may prove the Ontario apple growers' salvation, as the advance in duty to 90 cents a barrel will give him a better show in that market, even although he may have to meet strong competition from British Columbia.

The following history of a box of Spy apples is interesting. This box was the gift from a Hamilton man to an officer at the front, and was grown and packed at Burlington. The apples were shipped in November, 1915, and forwarded to France. The officer, to whom they were consigned

Fruit and Vegetables Solicited

WE GET YOU BEST PRICES

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto Market, we have established branch warehouses with competent men in charge at Sudbury, North Bay, Cobalt, Cochrane and Porcupine. In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies

WE ARE PROTECTED BY THE PRODUCE REPORTER Co's SYSTEM — CREDIT BOOK — CHICAGO — ALL CONTRACTS GOVERNED BY THEIR TRADING RULES AND GRADES

Branch Warehouses: Sudbury, North Bay, Cobalt, Cochrane and Porcupine

Send for Shipping Stamp

H. PETERS

88 Front St. East, Toronto

INTERNATIONAL APPLE SHIPPERS ASSOCIATION

was transferred to Alexandria, and the apples followed. Before the gift reached him he was again transferred, and he first made the acquaintance of the box in Greece, during the last week of February, 1916. In spite of all the delays, etc., every apple in the box was in first-class condition when the gift was received.

A Tulip Festival.

The St. Thomas Horticultural Society, which is the largest and most progressive in Ontario, is holding a Tulip Festival on May 11 to 14, which promises to bring a large attendance from all parts of Ontario. This event is being held under the auspices of the Ontario Horticultural Association, with the object of showing the representatives of the smaller societies the methods followed by the banner society.

A tulip show will be the main feature, but visitors will be shown about the city, where 160 public boulevard beds containing 25,000 tulips planted by the society will be in full bloom. In the parks and private gardens, which will be open to inspection, will be found 200,000 more. Sunday, the 14th, will be "Tulip Sunday."

There will be reduced railroad rates, and valuable prizes will be given at the flower show. The exhibit of tulips will comprise 200 varieties. It will probably be the finest collection ever shown in Canada.

Reports having been circulated that the entire plant of The Lord & Burnham Co., at St. Catharines, Ontario, had been turned over to the militia for militia purposes, The Canadian Horticulturist has been asked to state that when this plant was built it was made large enough to take care of all expansion for the next five years. Only about one-seventh of the floor space not immediately needed for business purposes has been turned over to the militia. The rest of the building is in constant use by the company in connection with their Canadian business.

Catch the disease-carrying fly that strays into your home with safe, efficient, non-poisonous TANGLEFOOT; not arsenic poison in an open saucer set within reach of the baby, or a can from which a poisoned wick protrudes, sweetened to attract both flies and babies.

Flies kill many babies, and fly poison more than all other poisons combined—

—But in homes where careful mothers have protected their babies from such risks by using only TANGLEFOOT, both dangers are avoided.

The Journal of the Michigan State Medical Society reports 26 cases of arsenical poisoning from fly destroyers in 1915 in only 11 states; in 1914 there were 46 cases in 14 states.

It states editorially:

"Symptoms of arsenical poisoning are very similar to those of cholera infantum; undoubtedly a number of cases of cholera infantum were really cases of arsenical poisoning, but death, if occurring, was attributed to cholera infantum.

"We repeat, arsenical fly-destroying devices are dangerous and should be abolished. Health officials should become aroused to prevent further loss of life from their source. Our Michigan Legislature, this last session, passed a law regulating the sale of poisonous fly papers." (70)

Made in Canada by THE O. & W. THUM CO., Walkerville, Ontario
American Address: Grand Rapids, Mich.

New Brunswick Seed Potatoes

Choice seed potatoes will be almost impossible to get at planting time. Order your requirements now while I have some to sell.

Write for price list.

C. FRED FAWCETT, - UPPER SACKVILLE, N.B.

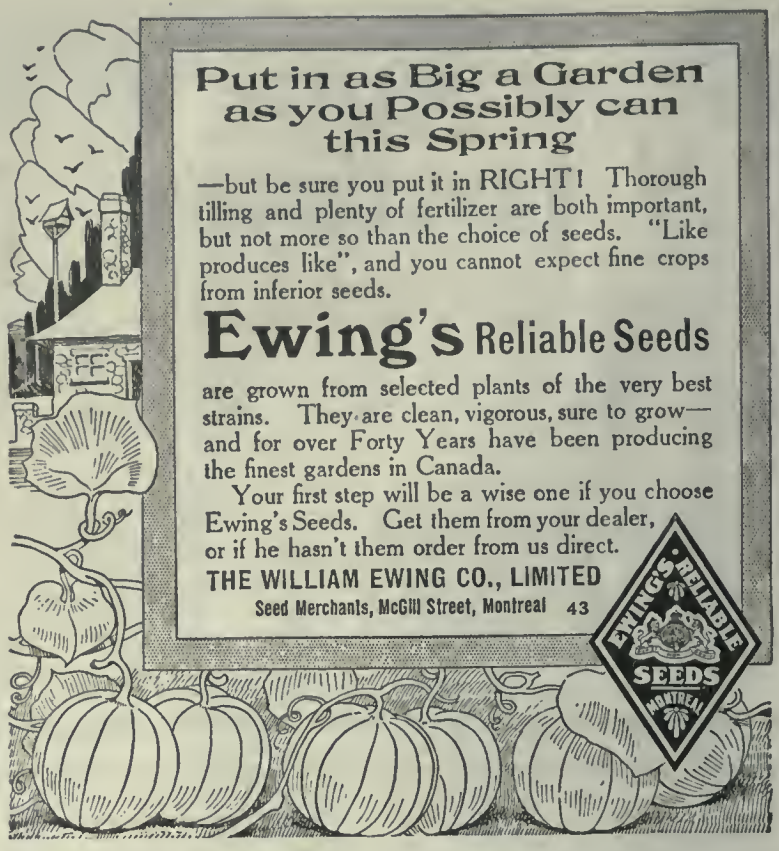
Remember the Day You Sprinkled the Potatoes?

You used a sprinkling can and barrel. About half-way through the rain came up, washed off the solution and made it necessary for you to do the work all over again. The chances are if you had had a

Spramotor
It isn't a SPRAMOTOR unless we made it

you would have been able to do the spraying soon enough for the plants to get the benefit. With a Spramotor remember, you can spray an acre of potatoes thoroughly in 15 minutes. It sprays four rows at once—three nozzles to a row—and is adjustable up to 40 inches. It has a capacity of 12 nozzles with a guaranteed pressure of 125 lbs. at every one: all working. The fact that the Spramotor has over 100 Gold Medals and First Awards to its credit, shows that it is able to do the work the way you want it done. The cost, too, is lower than you imagine—as low as $6 up to $400. Booklet on request. Made in Canada. No duty to pay.

Spramotor Works, 2710 King Street, London, Canada



Items of Interest

The Vineland (Ont.) Horticultural Experiment Station has home-grown onion and beet seed for distribution in small quantities. Any person may have either one, or both kinds, as desired, by sending his name and address to the Experiment Station at Vineland Station. Each person is asked to report on the success obtained from this seed in comparison with other seeds used. This seed was produced on the Station farm last season from selected stock, and is of excellent quality. Anyone desiring to select plants from this seed for further seed production would have good stock to select from.

I have small fruits, raspberries, currants, strawberries, and some young apple trees which are doing very well. Some of the trees do well here. I have box elder, caragana, lilac, mountain ash, American elm, Russian poplar, laurel, leaved willow, roses of several kinds (the roses are slightly covered with earth for winter). Nearly all perennials do well.—R. W. McIntyre, Edmonton, Alta.

During the years in which I have subscribed for The Canadian Horticulturist, I have derived great pleasure and profit from it.—A. Carson, Barrie, Ont.

Strawberry Plants

PAUL JONES,

The most productive variety offered for sale to-day. Rewastick, Hub, Bethel, Winner, Manhattan. All the standards—50 varieties.

E. B. STEVENSON,

270 Grange St, - Guelph, Ont.

FLOWER POTS

We have a Large Stock of all sized

FLOWER POTS
FERN OR BULB PANS
3/4 AZALEA POTS
and
RIMLESS PANS

Orders Filled Promptly. Send for Prices.

The Foster Pottery Co., Ltd.
HAMILTON, ONT.

Pointers for Fruit Growers

Seth J. T. Bush, Morton, N.Y.

Agriculture and horticulture are the rocks upon which all true prosperity must rest. When the farmer and fruitgrower are prosperous and happy, their condition is reflected in every line of trade, and the whole country prospers.

When conditions are reversed, business stagnation and poverty follow.

The farmers and fruitgrowers hold their prosperity as well as their destiny in their own hands—they have hesitated and followed slip-shod methods long enough. They have got to get together and stick together, if they hope to reap the reward to which their labor and investment entitles them.

While the grower has been trying to hide his inferior fruit in the middle of the barrel, he has been at the same time "hiding his light under a bushel," in spite of the Divine command not to do so.

The consumer is obliged to pay for his fruit with a standard dollar, and he is entitled to a standard package.

The grower who is unwilling to join with his neighbors in an honest effort to improve conditions which affect his business, deserves nothing better than the thirty-five cents out of the dollar that he receives, and stands a fair chance of always carrying with him a "patch on the seat of his breeches" as an indication of his enterprise and resourcefulness.

There is never but one reason why a dealer or speculator will not buy as readily from an exchange manager as from the grower direct, and that reason is because

SANDER & SONS
ST. ALBANS, ENGLAND
ORCHID GROWERS. The Finest Stock in the World
Catalogue on Application

Northern Grown Apple Trees
$18.00 per hundred.
C.O.D.
Albert Nurseries, Albert, New Brunswick

The Georgian Bay Tree Pruner
Saves in Many Ways
Every Orchard
Needs One

The Price is $2.50
Write to G. W. BULL, Mfr., Wiarton, Ont.

(Style "L"—Long stay on wood scantling and posts.)

Improve the Front of Your Property

Nothing will add more to both the appearance and value of private or public property than a neat Frost Improved Lawn Fence.

It is very artistic in its symmetrical design, and has the strength and quality for long, long service, because we make it throughout of special standard Frost Hard Steel Wire, made and heavily galvanized in our own mills.

Proper proportions and perfect fabric are ensured by weaving on the latest automatic power machine—the only one of its kind in all Canada.

FROST IMPROVED LAWN FENCE

is based upon the "Quality First" idea from start to finish. The heavy zinc coating it receives is more durable than paint and will not crack and peel off, besides being fully rustproof.

Laterals are formed of two No. 13 wires tightly cabled. Stays are evenly spaced, uniform and straight-standing.

Can also be erected on iron posts with pipe railing. 60

Write for illustrated lawn fence booklet in two colors, free.

Frost Wire Fence Co., Ltd., - - Hamilton, Ont.

What Is A Conservatory Going To Cost?

THE truth is we can erect you a greenhouse for any sum you care to mention, within reason.

We can deliver a small house in sections and erect it in a few hours with connections to your present heating apparatus—on the other hand, we have all the facilities to erect the largest commercial greenhouse, complete with heating, ventilating and drainage.

There's no need to pay extravagant prices for your greenhouse when our prices are as low as is consistent with the high quality of material and workmanship we maintain.

Write us now while this address is before you. One of our greenhouses would add more than its cost to the value of your home.

GLASS GARDEN BUILDERS, Limited

Dept. B, 201 Church Street, TORONTO

Transportation Bldg., St. James St. Montreal

Why Don't You Paint the Barn?

Costs too much just now, you say. Ordinarily you would be right; but not if you use a Spramotor. It may surprise you to know that a barn 40 x 60 x 18 feet, with two gables—4,320 square feet to cover with paint—can be covered with 200 pounds of fireproof paint for $18, and can be done in half a day, with two men. The

Spramotor
It isn't a SPRAMOTOR unless we made it

applies the paint as fast as twenty men with brushes, and it drives it into every crack and crevice. It is possible and profitable to make your buildings fire-proof and sanitary at a cost of one-tenth the price of oil paints. Then in addition to this you have the Spramotor for other uses. Divide its cost by the number of things you can use it for and you'll be surprised to find how quickly a Spramotor pays for itself. MADE IN CANADA—NO DUTY TO PAY.

Spramotor Works, 2711 King Street., London, Canada

More Potato Profits

MACHINERY may make all the difference between profit and no profit in growing potatoes. Get the right ones. We make complete lines of planting, weeding, cultivating, spraying, ridging and digging tools, all of which we guarantee. 80 years of factory and farm experience back of them. We'd like to tell you about all

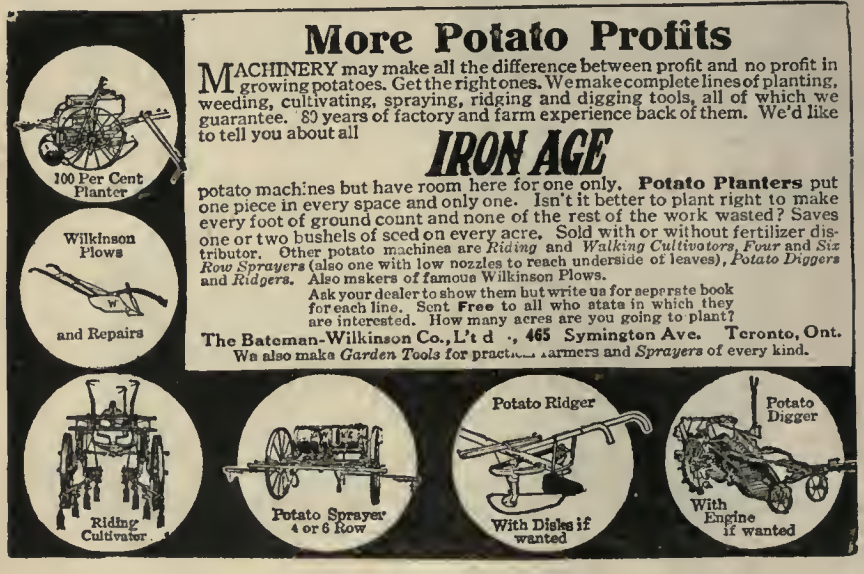
IRON AGE

potato machines but have room here for one only. **Potato Planters** put one piece in every space and only one. Isn't it better to plant right to make every foot of ground count and none of the rest of the work wasted? Saves one or two bushels of seed on every acre. Sold with or without fertilizer distributor. Other potato machines are *Riding* and *Walking Cultivators*, *Four* and *Six Row Sprayers* (also one with low nozzles to reach underside of leaves), *Potato Diggers* and *Ridgers*. Also makers of famous Wilkinson Plows.

Ask your dealer to show them but write us for seperate book for each line. Sent **Free** to all who state in which they are interested. How many acres are you going to plant?

The Bateman-Wilkinson Co., L't d ., 465 Symington Ave. Toronto, Ont.

We also make *Garden Tools* for practical farmers and *Sprayers* of every kind.



RENNIES SEEDS

PUREST-CLEANEST
MOST RELIABLE
GET CATALOGUE
AT BEST DEALERS
OR DIRECT
TORONTO ~ MONTREAL
WINNIPEG ~ VANCOUVER.

he can buy cheaper from the grower direct. If he can't buy from the grower, he MUST buy from the exchange manager.

A good many simpletons are constantly laying the flattering unction to their souls that they are a good deal smarter than their neighbors, and can "put one over" the other fellow very easily; but they are living in a fool's paradise and deceiving no one but themselves. I would urge every grower who is proud of his business and hopes for the reward to which his investment and labor entitle him to do everything in his power to help to elevate the standard of his products and increaae his own prosperity.

Don't be content to be "dumb driven cattle," but rise above the petty neighborhood suspicions and jealousies and show the world that there may be "captains of industry" on the farms as well as in the industrial centres of your great country.

Cease to permit yourself to be exploited and used by speculators, to be played one against the other, to force prices down; but, standing together, reverse the order and play speculator against speculator to force prices to a point that will insure you honor and prosperity among your fellow men.

Niagara District Fruit Notes

F. G. H. Pattison, Winona

Generally speaking, fruit trees, vines and bushes have come through the winter well. In one or two localities some damage is reported to have been done to peach buds. Nursery stock sales have reached the lowest point in years. Even baskets are not selling as well as usual. In spite of this condition, however, a good many car loads of manure have come into the district, so the matter of keeping up fertility is not being neglected. Pruning is well forward amongst all progressive fruit growers. Labor of a kind worth having is decidedly scarce and wages are inclined to be higher than last year.

A report from Beamsville says that tomato growers in that neighborhood are not likely to plant a large acreage this spring on account of the labor situation, and the small price being paid per basket by the canning factories. No great quantity has been contracted for as yet.

A good deal of uneasiness prevails amongst the fruit growers over the prospects of a probable shortage of experienced help when the season opens. This is forecasted by the number of advertisements in the district papers for fruit farm help, and by the number asking for berry pickers months in advance of the season. As to prices for the coming crop of tender fruits, there are two features that are decidedly encouraging and these are: (1) That unemployment in the cities is almost unknown, all mechanics, etc., being employed at good —and in a number of cases at record wages. These classes are the largest buyers of fruit when they have the money; (2) The canning factories will be forced to purchase more fruit and vegetables than they have in the past two years, if they wish to keep their plants going to meet the increased demand likely to come soon.

The advertising campaign, so successful last season, is to be placed on a wider and more far reaching basis, and steps will be taken towards further co-operation in distribution and marketing.

On March 8th and 9th, the Norfolk Fruit Growers' Association in connection with the Provincial Department of Agriculture held a successful Fruit convention at Simcoe. President Joseph Gilbertson declared that now was the time for fruit growers to give their orchards the best attention on ac-

STRAWBERRY PLANTS

If you are interested in the growing of this fine fruit, write for price list of varieties and valuable information how to grow healthy plants and best quality berries.

JAS. E. JOHNSON & BROS., SIMCOE, ONT.

EVER BEARING STRAWBERRIES

Fine quality and wonderful in bearing all season. Get some and plant them this spring and pick berries all summer till they freeze up. 50 plants for $1.00. 100 plants for $1.75. In U. S. money. We pay the postage.

Lost Springs Nursery and Fruit Farm, Lost Springs, Kansas, U.S.A.

MALLORY'S Strawberry Plants

give satisfaction enjoyment profit

Dunlap, Wonder, Williams, $4.00; Arnont, Uncle Jim, $5.00 per 1000. 200 plants, 50 each of four varieties for $1.00.

We also have good **Seed Corn.** *Send for Price List.*

N. E. MALLORY, :: Blenheim, Ontario

Order

Canadian Grown Nursery Stock

direct from our Nurseries, and save all middlemen's profits. Write at once for our descriptive catalogue and special prices for fruit trees, small fruits, Roses, Shrubs, etc. Address

J. H. McCOMBS

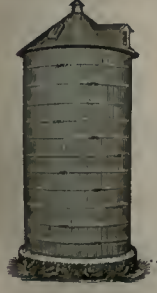
Union Wholesale Nurseries

Fonthill, Ontario

SKINNER SYSTEM OF IRRIGATION

Control complete. Prevents drought losses. Reduces labor bills. Increases profit. Special Portable Line for $11.75. Send for new Bulletin.

The Skinner Irrigation Co.
217 Water Street Troy, Ohio.

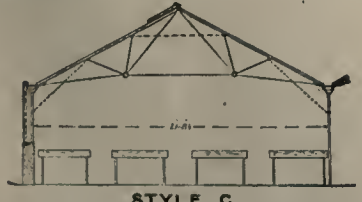


10-15-20

Years from now the Bissell Silo will be giving good service. It is built of selected timber, treated with wood preservatives that prevent decay. It has strong, rigid walls, air-tight doors, and hoops of heavy steel. Therefore it lasts, simply because it can't very well do anything else. Our folder explains more fully — write Dept. N.

T. E. BISSELL CO., Ltd., Elora, Ont.

See advt. also on page 107.



STYLE C

This is a New Model for 1915, the result of fifteen years' experience in Greenhouse construction for Canada.

Dotted lines show location of wind-ties that positively prevents vibration of the sash.

Supplied in widths up to 25 feet 2¼ inches from post to post.

KING CONSTRUCTION CO.,
40 Dovercourt Road - Toronto.

"One Man" Spraying

Another Solution to Your Hired Help Problem

Sprayer Complete as you see it, with wheels, etc.—$200.00.

Not only is it important that you should get the most and the best that your orchard, field and garden will produce, but the alert farmer and fruit grower will diminish his need for hired help by using labor-saving methods.

The I.X.L. Junior Automatic Power Sprayer enables one man to do the work that usually requires the time of two men. The I.X.L. Junior is made in three sizes. It consists of a 3 H.P. Engine, cypress tank, gear driven vertical cylinder pump, two 25 ft. leads of hose, two visible spray nozzles, complete in all details.

For Garden Spraying we recommend the I.X.L. Vegetable or Potato Sprayer, which can be converted to orchard spraying by attaching spray poles to hose.

Write for price and complete description. Fill out the coupon for our Booklet on Spraying.

CANADIAN SPRAYER COMPANY
TRENTON, ONTARIO

Canadian Sprayer Co.
Trenton, Ont.

Sirs:

Kindly send me your book on Spraying.

Name .....

.....

Prov. .....

Size of Orchard .....

count of many orchards being neglected. The following were the chief speakers: P. J. Carey, Toronto, gave two addresses on "The Packing and Marketing of Fruit." Prof. J. W. Crow, on "Cultivation and Cover Crops for Orchards." F. L. Gabel, Ancaster, on "Strawberry and Raspberry Culture." District Representative Neff, a general address on "Fruit Growing." R. R. Waddle, Chief Fruit Inspector for Western Ontario, on "Pruning," and Prof. Caesar, on "Apple Scab and Leaf Roller." A very interesting letter was received from Manager Jas. E. Johnson, at present in Florida, of which the keynote was that apple growers in Norfolk County should produce apples of good quality and then look for good average prices in such fruit during the coming season, and for some years to come.

That the Dominion Canners lost heavily last season is apparent from their annual report for the year 1915, submitted at the annual meeting held in the head office, Hamilton, on March 1st. This showed a loss for the year of $294,438, as against a profit in 1914 of $330,858, in 1913, $466,415, and in 1912, $503,409. I am informed on good authority that to break even this coming season is the best they can expect.

For having in his possession three boxes of apples packed contrary to the Inspection and Sales Act, Frank Everett was fined $10 and costs in the Toronto Police Court by Magistrate Kingsford recently. The magistrate described the offence as being very serious, as it was against the good name of Canada.

Several meetings on the question of amalgamation of the fruit growers and dealers of the Niagara District in one central organization, were held during the past month both at St. Catharines and Grimsby. It was decided that, as the system of marketing in the Western portion is different from that adopted at St. Catharines and East, that it would be better for each to organize separately for the present. Accordingly, the committee appointed to organize District No. 1, from Hamilton to the Sixteen Mile Creek, east of Jordan, is still going on with its work drafting the by-laws, etc., and preparing for organization.

Tomato growers around Grimsby predict that the Canning factories will have to pay 30 cents per bushel for tomatoes before the season comes to a close. They base their predictions on the grounds that tomatoes cannot be grown for 25 cents, and that the factories must have them next fall.

The fruit growers in Genesee and Monro counties, New York State, are complaining of great damage done to their fruit orchards by the Leaf Roller.

A number of box packing and pruning demonstrations are being held in Wentworth county. On March 22nd, one was held at Waterdown, and on March 23rd at Dundas.

Sugar is advancing in price again and will probably be very high by the time fruit comes in. This situation during the past two years has been a serious detriment to the tender fruit industry.

CLASSIFIED ADVERTISEMENTS

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign, or single letter to count as one word, minimum cost 30c., strictly cash in advance.

REAL ESTATE

ALL KINDS OF FARMS—Fruit farms a specialty. Write for Catalogue. W. B. Calder, Grimsby.

NIAGARA DISTRICT FRUIT FARMS—Before buying, it will pay you to consult me. I make a specialty of fruit and grain farms. Melvin Gayman & Co., St. Catharines.

FARMS—All kinds, all sizes, for sale, fruit, stock, grain and dairy farms. Let me know what you are looking for. H. W. Dawson, Brampton, Ont.

CALIFORNIA suburban farms for sale. Easy payments. Write E. R. Waite, Shawnee, Oklahoma.

SEEDS.

YOU WANT "Reliable Seeds," get our Seed Price List and Save Money. Morgan's Supply House, London.

PRIZE DAHLIAS—Twenty bulbs $1.00, field grown, very beautiful, all colors, named. Mrs. A. H. Switzer, R. 6, St. Mary's, Ont.

PLANT AND NURSERY STOCK.

FOR SALE—Choice assortment of flowering perennial plants and vines. List and prices sent on application to E. P. Smart, 64 King Street, Brockville, Ont.

BEAUTIFUL GARDEN FLOWERS—Catalogue describing my collection sent free. The largest collection of perennial plants in Canada. Malcolm Westland, Tambling Corner, London.

STRAWBERRY PLANTS.—Plants from pedigreed stock from $3.50 per thousand. Send for list. Leavens Orchards, Bloomfield, Ontario.

SPRAYING.

SAVE MONEY—Get our Spraying and Garden Supply Catalog. Morgan's Supply House, London.

SPRAYERS for every need: Bucket, Knapsack, Barrel, Traction and Gas Engine machines. D. E. Watson, Uxbridge, Ont.

BEES.

ITALIAN QUEENS and early shipments of bees by the pound from Texas. Write us for prices. R. V. & M. C. Stearns, Brady, Texas.

CARNIOLAN, GOLDEN AND THREE BANDED ITALIANS. Bees by the pound, Nuclei. Ready to go April 1st. Write for price list. C. B. Bankston, Buffalo, Leon Co., Texas.

BEES—Per pound, $2.15; per frame, $2.35; queen, $1.00. Address Aurora Apiary, Aurora, Ont.

CHOICE ITALIAN BEES, Langstroth hives, no disease. Chris. Grimoldby, Owen Sound Ont.

FOR SALE—Three hundred pounds Weed Process Comb Foundation, any weight. R. F. Holtermann, Brantford, Ont.

BEES and QUEENS from my New Jersey Apiary. Price list free. J. H. M. Cook, 70 Cortland St., New York City.

BEES FOR SALE—W. S. Walton, Scarboro Jctn, Ont.

ITALIAN BEES AND QUEENS as advertised on page 102. Catalogue free. Deroy Taylor Co., Newark, N.Y.

ITALIAN BEES—good workers, no disease. Lawrence Wheeler, Brussels Ont.

BEE SUPPLIES.

BEEKEEPERS—Please write for our Catalog. Morgan's Supply House, London.

1,000 GUMMED HONEY LABELS, two colors, any wording, for $1.30. Catalogue free. Eastern Label Co., Clintonville, Conn.

BARGAIN in 8 frame comb honey supers. About forty with gate separators for no bee-way sections 4¼ x 4¼ x 1½ inch., most of them filled with sections and foundation, 45c each. I. Langstroth, Forest, Ont.

WANTED—Second hand Honey Extractor. Apply to R. Rear, Penetang, Ont.

EMPLOYMENT.

GARDENER WANTED to take charge of Springbank Park, London, Canada. Apply to E. V. Buchanan, General Manager, Public Utilities Commission, London, Ontario.

COMPETENT MAN, age 40, wants position, orchard, garden, poultry. Write, Orchardist, c|o Canadian Horticulturist, Peterboro, Ont.

Festival of Tulips

ST. THOMAS, MAY 11, 12, 13 and 14

Visit the Flower City of Ontario on these dates. See the finest collection of tulips in Canada. Exhibition of 200 varieties—May 11, 12 and 13. Tulip Sunday, May 14.

See 160 public boulevard beds containing 25,000 tulips planted by the Society in full bloom. Parks and private gardens containing 200,000 more, open to inspection by visitors. Reduced rates on all railroads. Splendid accommodation for visitors. All under the auspices of the Ontario Horticultural Association. For further information write St. Thomas Horticultural Society.

The Canadian Horticulturist

Floral Edition

Vol. XXXIX PETERBORO, MAY, 1916 No. 5

Factors of Success in Strawberry Growing*

F. L. Gable, Dominion Fruit Inspector, Toronto

WHAT soil is most suitable for strawberries? No fruit, plant or weed will thrive on as many different soils as the strawberry, but which soil is best? It is generally admitted sandy loam will produce the greatest crops of berries, provided it is well manured and cultivated, although a great many berries are grown on heavy lands successfully. The strawberry requires an abundance of moisture although damp soggy soil on low land is absolutely useless for growing them. Safe advice to give an inexperienced grower with only ordinary farm land to choose from would be to use the spot where the greatest variety of farm crops do the best. The nearer it approaches what is considered good garden soil the better.

Do not plant strawberries on ground not previously cultivated for two years as it is apt to be infested by cut-worms, white grubs or other harmful pests. It is also apt to be full of weeds and grass seed. The best land is that which has been in a hoe crop the previous year, (corn is not so good), it being both free from insects and weeds.

To prepare that ground. It is best to plow in a good coating of manure before planting. This can be applied especially heavy if well rotted. It is also advisable to broadcast agricultural lime at the rate of one-half ton per acre. Your ground should be well cultivated as early as possible in the spring. The earlier you get your plants set the better, as strawberries thrive in cool, moist weather and cannot stand much heat and drought.

The digging of plants and their selection should be done carefully. Only good healthy plants should be used. These should have the dead leaves pulled off and the plants should be well trimmed. In buying plants make sure that they are trimmed ready for planting and do not allow the wind or sun on plants. They should be covered with a wet bag or cloth and the plants kept thoroughly wet until planted. The rows should be three and a half to four feet apart and the plants set from eighteen inches to thirty inches apart according to the variety. The spade is useful to use in planting, as by a little experimenting you will find you can make a good wedge-shaped opening and by spreading the roots out in this opening and tramping the plant in well with the crown just above the earth you will find your plants will grow nicely.

As soon as your plants are set, cultivation and hoeing should begin. Continue it each week throughout the summer. Do not allow weeds to get a start. The blossoms should be picked off. Do not allow runners until after July 1st, when they should be allowed to run, but placed in the row each way from the mother plant. If properly placed you will soon get a matted row.

Strawberries are troubled somewhat with fungus diseases which may reduce your crop unless controlled. This is easily done by spraying well in the spring, after growth begins, as well as two or three times when they start growing again after picking.

Another point in strawberry growing which is often neglected, although it pays the best of all, is mulching with straw or very coarse manure. About four good loads of straw to the acre applied just after the ground is frozen and raked off between rows in the spring after the plants start growing, will not only protect your plants through the winter, but will hold them back in the spring safe from late frosts. By raking this off in the row it helps to keep the moisture during the summer drought, when moisture is a necessity. It also helps to prevent having sandy berries.

A well-loaded Duchess apple tree in the orchard at the Central Experimental Farm, Ottawa.

*Extract from an address delivered before the members of the Norfolk Fruit Growers' Association.

Rev. Father Leopold, Past President of the Quebec Fruit Growers' Society, among the cherry trees which bloom at the Oka Agricultural Institute, Oka, Que.

Two Fruit Pests to Watch For*

G. E. Sanders, Entomological Division, Annapolis Royal, N.S.

LAST year I warned the fruit growers of Nova Scotia of a widespread outbreak of Canker worm, which would damage many orchards in the spring of 1916—that warning was based on the reports of our brown tail moth inspectors. This year, reports from the same men say that the infestation is increasing, and that a great amount of damage will be done this spring. Some few owners have already applied tanglefoot bands. Where these bands were not applied very thorough spraying in 1916 is all that can now be depended upon to control Canker Worm. If you saw any number of light grey moths about the trunks of your trees last November you can depend upon it that they will eat more or less of the leaves from your trees this spring, and cause you some loss.

In regard to spraying for Canker Worm, we, of course, all know what a hard insect it is to poison. When more than half grown it apparently thrives on arsenic, so in order to control it we must have the leaves thoroughly coated with poison when it emerges from the egg and begins feeding, for it is then comparatively easy to kill. Most of the Canker Worms emerge about five days before the blossoms show pink, so if your orchard is infested put on the pink bud or second spray a couple of days earlier than usual, or else retard your semi-dormant or first spray until the leaf is as large as a twenty-five cent piece, using in both sprays a larger quantity of poison than usual.

The present outbreak is wide, covering the whole Annapolis Valley, and in a general way only the orchards that have been heavily sprayed for the past two years are in any way free from them.

Tussock Moth.

We are now on the eve of another outbreak also of Tussock Moths. Inspection has shown this outbreak to be widespread, probably heavier in the West end of the Annapolis Valley than in the east. The Tussock Moth was particularly bad in the east end of the valley in 1906; the next outbreak in 1912 did not affect the valley so much. This present outbreak will damage a few orchards in 1916, but will not reach its height until 1917. In one orchard this year I found a large amount of fruit disfigured by the feeding of the larvae. The injury might, at first glance, be mistaken for that of the Fruit Worm, but the feeding is done later and does not heal out so perfectly. The apple is seldom deformed, the edge of the eaten areas are irregular, often extending irregularly over half of the apple.

The eggs of the Tussock Moth were deposited by the female about August 30, about 150 eggs in a cluster, on the old pupa case, and covered with a frosting or froth to protect them. They may be found on any part of the tree, usually on the fruit spurs of the apple. The young larvae will emerge during the last week of June and feed for two or three weeks on apple leaves, later feeding on the fruit to a certain extent. In order to control Tussock Moth we must put poison into our last summer spray, or that going on during the last week of June. If the eggs of the Tussock Moth are in any way numerous in an orchard, it would pay to put in a larger quantity of poison than usual in the last spray.

*Extract from a paper read at the last annual convention of the Nova Scotia Fruit Growers' Association.

Dusting Fruit Trees

D. Johnson, Dominion Fruit Commissioner, Ottawa

I was much impressed with the address delivered on "Dusting Fruit Trees" by Professor Reddick of Cornell Agricultural College, before the New York Fruit Growers' Association this year. Professor Reddick stated that after five years experimenting with the dusting of fruit trees for scab and insects affecting the fruit and foliage, he was convinced that as good results could be obtained, as by spraying the trees with liquid sprays. The expense of treating an orchard in this way is about equal to that of the common method of spraying. Two men and one horse can dust thirty acres a day of full grown Baldwin trees. In this way a great saving of time is effected, besides getting the poison on the tree at just the proper time.

Dusting machines can be attached to an ordinary spray pump engine and are offered by many manufacturers at prices ranging from $25 to $120. Up to the present I understand that they have not been able to produce a dust that would be of sufficient strength to destroy San Jose scale or Cyster Shell scale, but Professor Reddick intimated that he hoped to obtain a dust which would be equal to such demands.

The material used in dusting is, I understand, composed of sulphur, arsenate of lead and gypsum, which is ground into a fine dust that will pass through a two hundred mesh sieve. This mixture is blown out through a pipe and floats away like smoke through the air, and if applied on the wind side of a tree will thoroughly cover it.

It was the general impression among the fruit growers at the New York convention that the dusting of orchards may in time do away with the liquid spraying of trees, particularly in orchards not affected with scale. I would, however, advise the fruit growers of Canada that they stick to the old and thoroughly tried sprays, until our Canadian Experiment Stations have proved that dusting is satisfactory under all climatic conditions.

Color is the greatest need of the apple grower. In order to get this, you must prune so as to let the sun, which gives color, into all parts of the tree. The later cultivation is kept up the less color you will have.

One of the best ways to control insects on strawberries is by rotation of crops and clean cultivation.

How Blossoms Are Fertilized*

Prof. J. E. Hewitt, B.S.A., Guelph, Ont.

THE production of millions of dollars worth of fruit depends largely upon insect pollination, and no insect is so important in this work, according to A. A. Phillips, of the Bureau of Entomology, Wash., as the honey bee. It is a most conservative estimate to claim that the honey bee does more good to agriculture in its office as a cross pollinator than it does as a honey gatherer.

What is there to support this statement? The indirect evidence we see in abundance in the numerous and wonderful adaptations of flowers to prevent self-fertilization and to insure insect pollination. The direct evidence has been obtained by experiments carried on by the various experimental stations and is very conclusive.

Prof. Waite, of Washington, whose experiments were published in the Year Book of the United States Department of Agriculture, reports as follows:

"Out of 2,586 blossoms covered with gauze netting only three apples set fruit. Of these the Baldwin, Spitzenburg and Fameuse set some fruit. The Baldwin, which is often self fertilized, gave four times better results when cross-pollinated. Cross-pollinated apples were larger, more highly colored and better supplied with seed."

Results With Pears.

"The Anjou, Bartlett, Clapp's Favorite and Clairgeau were found to be completely self-sterile, while the Flemish Beauty, Seckle and Angouleme were found to be more or less self-fertile.

"Out of 153 blossoms covered of the Arkansas Lombard no fruit set, and out of 475 blossoms covered of the Wild Goose (Prunus Americana), no fruit set; out of 90 blossoms covered of the Japanese Plum Mearu no fruit set."

Prof. Waugh reports the following insects pollinating the plum: Honey bee, bumble bee, wasp and some short-tongued bees. Prof. Waugh confirmed Waite's work with the plum and draws the following conclusions from his experiments: The results indicate that the insect visits are of prime importance in the pollination of plums. Observation in the field shows that the common honey bees are nearly always the most active workers and the ones which by the character of their operations in the flower may be held chiefly responsible for distribution of pollen.

Mr. C. H. Hooper, in the Journal of the Royal Horticultural Society, March, 1912, reports that when insects were excluded from gooseberries and red and white currants, practically no fruit was formed; from cherries a single fruit set; from plums a few set fruit; from apples out of 63 varieties only one set and matured fruit, viz.: Irish Peach; and from raspberries, fruit set but results were not so good as with flowers exposed.

Red Clover.

Darwin states that one hundred flower heads on plants protected by a net did not produce a single seed, while a hundred heads on plants growing outside, which were visited by bees, yielded 68 grains of seeds.

Darwin's experiments with white clover proved that cross-pollination is necessary. Twenty covered heads yielded a single aborted seed, while ten unprotected heads visited by bees yielded 220 seeds.

In Bulletin 157 of the Kansas Agricultural Experimental Station it is stated that extensive experiments have shown that seed production is almost entirely prevented when insects are excluded from the blossoms.

In conclusion it may be said that bees are absolutely indispensable for the production of fruit and clover seed. With cross-pollination apples are more vigorous and more resistant to disease.

Practically no insects work except bees when apples are in blossom. Some varieties of apples are self-fertile, but even these have more and better fruit when bees are present.

* Extract from an address given at a short course in beekeeping at the Guelph Agricultural College.

Lime in the Orchard

Prof. W. S. Blair, Kentville, N.S.

I AM often asked if I would advise lime for an orchard. My reply is, yes! for the purpose of starting a clover cover crop, if for nothing else. It is doubtful of what value lime is to increase our apple crops, but certainly many orchards will not produce clover without lime. The quantity per acre required will vary somewhat, and in many cases all the lime requirements may be made up by a judicious use of slag. I am convinced, by our experiments at Kentville, that lime in some form is essential in order to get a growth of clover on many of our soils. The reason why vetch has given better results than clover is that vetch will thrive on soils which are quite acid, although liming is usually helpful to it. It has, therefore, a far wider range of adaptability than clover, which tends to disappear altogether when soils become exceedingly acid.

Lime, of itself, will not always give increased crops. On poor soils there is not the gain one might expect, for lime will not furnish the necessary nitrogen, potash and phosphoric acid.

Loading up with ammunition for the fight against the pests. Photo taken in the Niagara District, Ont.

A Ruined Family Tree

By Herbert F. McDougal.

A WORN codling moth, with spray in his eye, climbed out to the tip of a limb, and wearily took in the damp landscape with a vision constructed and dim, and he mumbled and muttered under his breath, of latter-day happenings dire, when a man with a hose and a nozzle that worked could put out a pest like fire.

"That old apple tree, where I spent happy hours, will never again be the same, since that modern man with his poisonous spray and his knowledge of insects came; he has broken my home and has poisoned my eye, and the iron has entered my soul, and he's made it so hot for this old codling moth, that the said moth is hunting his hole.

"Generations my family had lived in that tree, and had thrived on its generous fruit, and the man who evicted us moths from our homes is nothing much short of a brute. He has put a kink in our family line, and has brought to us nothing but woe; for we can't live on dope like he shot in my eye, and I reckon we'll all have to go.

"It is sad to consider the fate of a bug that has had an existence so gay; we were happy so long as men let us alone, but we can't stand this new-fangled spray. It is true that the man with a deed to that tree may think he was well in his right when he cranked up his sprayer and loaded his hose, and put a proud family to flight.

"But it's certainly hard on a well-meaning bug to have his existence cut short, just in order that apples may grow big and red and be of desirable sort. He has shot our traditions all full of rough holes, and he's certainly hard upon me; and, however it blossoms and bears ruddy fruit, to us it's a bum family tree."—Fruit Grower and Farmer.

We hear considerable about the ability of lime to liberate potash from the soil. Where soils have been fertilized generously with potash in recent years, the use of lime will add noticably, for a time, to the quantities of potash which plants can take from the soil. This is due to the fact that lime enters into certain compounds replacing potash, which then passes into solution in the soil water, or is held in the soil in such a physical state as to be more readily available than before. It is obvious that an end to such a possibility will soon be reached, for there will not be sufficient potash remaining in these readily decomposable compounds to be liberated to any practical extent. The most of the potash in soils is present in such combinations that lime will have no practical decomposing effect upon it. It seems to me little can be hoped for in a practical way by attempting to set free potash for crops by liming.

The fact that large quantities of potash have, in recent years, been used in the Annapolis Valley, will materially help out in our present potash shortage, but the source of our potash supply in the future should be through the clover plant, with its deep feeding root system, which will do more to liberate potash than will the lime.

Many of our orchard lands are so deficient in humus and plant food that they will not grow cover crops even if lime is used. If such is the case, a system should be adopted to give to the orchard sufficient stable manure to get a good clover crop started, after which there will be little difficulty in securing a good catch. From five tons of good stable manure to ten tons of poorer grades per acre should be sufficient, if properly applied, to give an excellent catch. If necessary, to this soil should be added about from two to four tons of ground limestone per acre. In some cases slag is all that will be required, and this can be applied at the rate of one thousand pounds every three years. It may be that it is best to give a good application at once, rather than spreading it in small quantities over several years. In other cases it may be that lime only is required. This can be determined by the vigour of growth in the orchard, and quality of the fruit previously produced.

Pear Blight starts in the spring of the year when the blossoms are open and that is the time it is carried, especially to apples. There is only one thing to do with pear blight, and that is to act quickly and keep on acting. To control it as few twigs as possible should be left for the insects to feed on. Early in the season every affected twig should be cut out. Be sure to disinfect your tools, because if you cut a diseased part and then cut a healthy part, you are almost sure to give it the disease.—Prof. L. Caesar, O. A. C., Guelph, Ont.

Essentials of Success

Seth J. T. Bush, Morton, N.Y.

One mistake very often made by persons who think they have "heard the call" to go into fruit raising comes through their undertaking a twenty-five or fifty acre orchard proposition with a five or ten acre capital. You can't sweep back the tide with a broom, and it is much better to operate on a small scale and do it thoroughly than to undertake something beyond your ability or means.

All land is not fruit land, and it is useless to try to grow fruit successfully unless you have the right kind of soil and other favorable conditions, and with these it is also useless unless you are prepared to spray, cultivate, prune and thin properly. All this costs money, and a great deal of it, and requires much labor, and that is not all the story. When you have done all the needed things to produce a fine crop of fruit, you will still fail of success if you do not properly grade and pack your fruit.

There never has been a time in the history of fruit growing when the absolute necessity for honest, uniform grading and packing was so apparent. We have got to leave the "culls" out of the package.

Every package of poor fruit that is allowed to go on the market reduces the price you are able to obtain for your good fruit. It is a mistaken idea for any man to think that when he succeeds in selling his inferior fruit, other than at the cider mill, evaporator or canning factory, that he is "just so much ahead."

We can and do raise enough high grade fruit in this country every year to supply all the demands, and each year the necessity of more markets and better distribution is more apparent. All inferior fruit should go into by-products, and none of it be packed in baskets and barrels, and thus go into consumption to the disgust of many and satisfaction of but few.

We are told that the peach contains a far greater percentage of sugar than the beet, and our scientific friends should tell us how to extract this sugar. The very finest material for setting prints in fabrics manufactured abroad is obtained from dried fruits. These matters call for careful investigation.

The grower must know when his fruit is ready to pick, and it must be picked when it is ready, not before or two or three days after, but just at the right time, or the returns will not be satisfactory, as the fruit will not carry properly, and there are so many peaches grown nowadays that people do not have to buy imperfect fruit. In any case, consumers will not pay fancy prices for it.

Preparations for Planting

Geo. Baldwin, F.R.H.S., Toronto, Ont.

BEFORE discussing the preparation of the garden for planting, let us pay a little attention to the lawn. If you have not already taken care of the renovating of the lawn, it is not too late yet. Get a sharp toothed rake and score the lawn from top to bottom, then thoroughly mix the following ingredients: One pound Kentucky blue grass, one pound white clover, one pound nitrate of soda (ground up fine), and about two shovelfuls of sifted soil (these quantities for a lawn twenty-five by thirty feet). Wait until the wind has subsided, then scatter the mixture on broadcast, raking it over again lightly. If there are no signs of rain, get the hose and give the ground a good soaking, then use the roller or pounder. Above all, keep the dandelion from blooming. Dig out the roots as much as possible.

Did you take the suggestion given in the April issue and raise your own plants? If not, get as many boxes of plants as you require to fill in bare spots in the perennial and other borders. Let me here give a word of caution as to handling these seedlings. Do not jerk them out of the boxes, but immerse the box, plants and all, in a pail of not too cold water for fifteen minutes, then slit the sides of the box, squeezing the ball of rootlets gently, take the plants out carefully and lay them down one by one where required. You will then not have to complain about the poor quality of the plants. Be sure to dibble the holes big enough, so that roots will be in a downward position, press the earth firmly about the roots, and finally give them some water. Do this in the evening if possible. This applies to vegetables as well as to flowers.

Feed the rose bushes with liquid manure from the time the bud appears till you can see the color of the bloom, and then stop. If they are bothered with green fly or aphis, and you cannot keep them down with the hose, use the prepared nicotine or whale-oil soap, following directions on the packages. Give the paeonies some support when blooms begin to get heavy. Do not allow more than about twelve or fourteen shoots of the phlox or delphinium to bloom, cutting off all others close to the ground. Be sparing with water on hollyhocks, as they are liable to rot or get brown spot on leaves. Pull out stray shoots of helianthus, which will persist in coming up where not wanted. Do not have too many blooms on asters, but thin out and let us have bigger asters this year. Try a few salpiglossis, they are just as cheap, and very pleasing, and above all plant some gladioli in clumps as well as singles dotted here and there. If you are using a hot or cold frame, be very particular about moisture and air and give the seedlings lots of room.

May is the most critical month in the calendar, for if preparation and proper planting is not done, failure will be the result. Go at the work, therefore, diligently and cautiously. First of all, the garden having been manured, dug, and rough raked, get, for an ordinary sized garden four pounds slaeked lime and two pounds powdered sulphur and mix them thoroughly. Scatter the mixture broadcast from top to bottom. Comb it into the soil with the rake. This being done and May the twenty-fourth having arrived, have ready the seed-box, boxes of plants, a hoe with feet and inches marked on the handle, a rake, dibble, line, can of water, and a one-inch board to stand on between the rows. You will then be ready to plant the cabbage. As an extra precaution against cut-worms, mix a teaspoonful of paris green, one pound of bran, enough water to make a paste, and scatter it here and there along the rows of both cabbage and cauliflower.

The celery trench was prepared two weeks ago. Keep the plants a little longer, till June 1st, then plant very carefully eight inches apart and rows eighteen inches apart, and let us see if we cannot have some No. 1 celery this year, paying particular attention to cultivating, watering, feeding, and earthing up later on. For peas, make the drills with the corner of the hoe two inches deep, and use lots of seed, thinning out if they come too thick. With the beans make the drills two inches deep and the full width of the hoe, and stagger the beans zig-zag eight inches apart, firming the earth down hard on top.

In a small garden, where you are limited to a small space for potatoes, make the rows two feet apart, putting tubers fifteen inches apart, five inches deep in light soil and four inches in heavy. Use medium sized potatoes and cut into three or four pieces, leaving two eyes to each piece. Be ever on the alert for the potato-bug and don't let them get ahead of you. Use paris green as often as required. In a large plot of potatoes, where more room can be given, make rows thirty inches apart and tubers twelve inches.

In planting seeds of cucumber and squash, press the seeds in edgeways an inch deep, ten to a hill, and thin out to five, at the same time sow a few seeds of radish for the squash bug to feed on. Do not put water on the foliage. Sow carrots a half-inch deep and thickly, beets an inch deep and thickly, parsnips put a pinch of seed every six inches along the line a half-inch deep and thin out, leaving the strongest plants. Leeks are recommended to be grown with celery, earthing up at the same time.

Sow salsify a half-inch deep and thin it out to four inches apart. Onions require a good rich and sunny location.

Density in the Flower Border. The Possibilities of a Small Plot Demonstrated.

Sanseveria Laurentii in flower. Grown by H. Irwin, Westmount, Que.

Sow them half an inch deep if you have not started them in heat, feed with liquid manure once in ten days, the same as for celery; cultivate between freely, and let us have some good sized and mild onions this year, by attending to them frequently. Corn can be grown in hills or rows, the latter for preference. Earth them up the same as for potatoes, and drive a stake at each end of the row, with a wire for protection against wind. Cut asparagus with a knife below ground, never pull it. Sprinkle salt on the bed during the growing season.

Cut off the bloom of strawberries if they were only planted last fall and have a good crop next year. The following year take the runners and start a new bed, having it in good shape by the time the old one is past usefulness. Tomatoes plant every four feet along the south side of a north fence. Trim out all laterals but four, training these up fan-shaped either to stakes or netting. Do not let suckers come up from the roots and never water the foliage, thus avoiding the black spot on fruit.

Do not chase the birds out of your garden, especially the sparrows, as they destroy their weight in insects every week. Protect the peas, lettuce, and black currants from the sparrows by throwing a few crumbs regularly in another part of the garden, covering peas and lettuce with fine gauze netting or cheese-cloth till they are well up. For currants tie some black thread about the bushes, with pieces of white paper dangling. Use white hellebore for red currant and grape caterpillars, and slug shot for cabbage worm. Don't kill bees, darning-needles, crickets, lady-bugs, spiders, frogs and toads, as they feed on harmful insects, and should be encouraged.

Make a compost heap now, so that you will have some good stuff to dig into your garden next fall. Dig a hole the size required, putting layers of earth and manure to a foot or two above the ground, covering the whole with four or five inches of earth, on top of which grow vegetable marrows, or squash.

Luxuries for the Home Garden

Miss Harris, Brome Co., Que.

ASPARAGUS and mushrooms are counted among the almost prohibitively expensive luxuries for the home table. Their scarcity and the uniformly high prices demanded for them gives color to the prevailing idea that their culture is difficult and success possible only to the expert gardener and greenhouseman. True, neither asparagus nor mushrooms are grown in a day but anyone who has the patient forethought to cultivate biennials and perennials instead of spending all his labor on annuals which will show more immediate results, need not shrink from the starting of asparagus and mushroom beds.

"Patience is a virtue—
Get it if you can—
Often found in woman,
But seldom found in man."

And so, to women gardeners especially, I would say, by all means have a mushroom and an asparagus bed, cheat the greengrocer and have these luxuries plentiful on your table throughout the season; only patience, along with one or two other favorable conditions, are necessary to certain success.

The Asparagus Bed.

If you are better endowed than most, with the virtue just alluded to and wish your asparagus bed to cost as little as possible, you may plant the seed in spring or early summer. The bed should be dug deep, made very rich and the soil well worked until it is fine and light. Sow the seed thinly in shallow drills, about two or three feet apart, covering with an inch of soil. When the seedlings are a couple of weeks old thin them out so as to leave only the stronger ones standing not closer than two inches apart. Throughout the season the bed must be kept watered and well cultivated, the soil around the plants being stirred occasionally and no weeds allowed to grow. The following spring they may be transplanted two feet apart in permanent beds and will commence bearing in three or four years from planting.

An easier and quicker way is to purchase good roots from a reliable seedsman. By so doing you will save two years or more.

For the home garden a convenient size for an asparagus bed is five feet wide, so that the middle can be easily reached from either side, and of a length sufficient to plant the number of roots desired. Plant in three rows, one in the middle and one on each side of the bed, taking care that the side rows are at least a foot from the edge of the bed. Dig lengthwise trenches about eight inches deep and place the roots in them a foot apart, spreading out the roots of each plant and placing in such a way that the crown or top will be covered about three inches when the trench is filled in.

Keep the beds free from weeds. Do not allow the surface to bake.

When the plants are well started cultivate between the rows with a hand cultivator or hoe. Some growers give the bed an application of salt dug into the surface of the soil every year, one half pound to the square yard, which is very beneficial.

Remember that the better and deeper the soil of your asparagus bed is prepared beforehand and the more fertilizer you supply it, the more and better asparagus you will get, so do not neglect your bed this season because you do not expect to cut the tender shoots until next year or the year after.

Special knives can be bought for cutting asparagus but any sharp knife carefully used will serve. Thrust the knife down into the soil at an angle so as to sever the asparagus stalk two or three inches below the surface of the bed—never try to pull up the stalks.

If good, large roots are planted and properly cultivated, you should be able to cut a little asparagus the following spring, but a good crop will not be gathered until the bed is two or three years old.

"Do you know that your chickens come over into my garden?"

"I thought they must be doing that!"

"Why did you think so?"

"Because they never come back."

Annual Flowers in Association With Other Plants

John Gall, Inglewood, Ont.

TO the beginner in gardening, especially if his or her garden is of small size, there are few more useful flowers than hardy annuals, and few that will give such a bountiful return for a small outlay of time and money. Indeed, these annuals, which may be sown in the open garden, may be looked upon as a sort of sheet-anchor for the novice, to fill up blank spaces where perhaps some more ambitious gardening scheme has gone awry, or to fill the hiatus caused by the passing of spring-flowering perennials or bulbous plants. The gardener in a large establishment can rely upon pot plants or nursery stock to make good these gaps, but the beginner can seldom afford this, and still less frequently has the facilities for carrying it into effect.

Too often, bulbs, especially the May-flowering tulips, are a source of great worry to the amateur. Owing to their late flowering and subsequent ripening of the foliage, they cannot, with safety, be removed from beds or borders sufficiently early to admit of the planting of the ordinary bedding plants, and for this reason many forego the pleasure that these bulbs are capable of producing, and ban them from their gardens. This is a great mistake, and one that can easily be obviated if we would make use of hardy annuals. In early May, seeds of these can be sown between the bulbous plants, and by the time the latter have finished flowering, and the leaves have died down, the annuals will be well on the way towards the flowering stage, and the bulbs none the worse for the association. Even beds of daffodils may be successfully treated in this way, and if the bulbs are lifted in early fall, before they have made extensive root growth, and replanted at once, they will be in much better condition than if they were lifted this spring, before their foliage had properly ripened, to make way for the geraniums that are so often relied upon for the summer display. It is true that these bedding plants commence to flower almost as soon as they are planted, and that the annuals seldom commence before July, but the four weeks or so that the beds or border spaces are without blossom is not noticed in a garden of mixed flowers. It is mentioned to prevent possible disappointment to would-be growers of annuals.

Apart from those annuals which can be sown between the bulbs or spring-flowering perennials, there are many half-hardy sorts that may be raised in frame or greenhouse, and planted out between the permanent occupants during the latter part of May. In this category come, Stocks, China Asters, Nemesias, Verbenas, and Antirrhinums, all of which are capable of providing a glorious riot of color during the summer and until frost arrives.

There are just one or two simple cultural details that ought to be observed if success is to be assured with this association of annuals with perennials and bulbous plants. First of all, the soil needs some little preparation, especially if seeds are to be sown. I have always found it advisable to lightly point between the plants with a small fork, so as to get about two inches of fine, workable soil. Into this some superphosphate of lime, a large handful to a square yard, is well worked, as this provides food of a lasting character to the annuals just at their flowering period. Then, thin sowing is absolutely essential. Sturdy seedlings only are of any use for this kind of gardening, or,

This splendid method of interesting school children in the preservation of bird life is being followed with success by the "Garden Arts and Crafts" section of the Hamilton Horticultural Society. Some 200 boys in the manual training classes of the city schools competed in a bird house competition. Mrs. R. B. Potts, the secretary of the Hamilton Society, may be seen. The second man on Mrs. Potts' left is John A. Webber, the president of the society.

The Conservatory and a glimpse into the garden of the Misses Thompson, Peterboro', Ont. Although of modest dimensions the surroundings of this home are among the most attractive in the city.

indeed, for any other; hence one must impress upon the beginner the vital importance of space from the outset. A weak seedling can never make a strong plant; hence it is necessary to lay a good foundation. This thin sowing then, must be supplemented by a rigorous thinning of the seedlings at the outset of their existence. This is necessary even when annuals are being grown alone, but doubly so when in association with other plants.

It will not materially harm the bulbs or herbaceous plants if just a few, a very few, of their largest leaves are removed to give the annuals more light and air during the early stages of their career. To bulb enthusiasts this will, I know, seem like rank heresy; but in gardening as in everything else, it is advisable at times to adopt a policy of give-and-take.

There are a good many hardy annuals suitable for this association, such as godetias, clarkias, candytuft, virginian stock, leptosiphon, nigella, Miss Jekyll, larkspurs, alyssum, mignonette, Shirley poppies, annual chrysanthemums, and pot marigolds.

Spring Work With House Plants

E. E. Kerrison, Calgary, Alberta

THE spring is a good time to repot our ferns. A good mixture of soil comprises three parts of fibrous loam, one part of sand, leaf soil and well-dried cow manure. Rub through a sieve, mix well together. Use clean pots with good drainage. Water once thoroughly after repotting, and then water sparingly for a time until the roots have started into the new soil.

Most people in the winter buy flowering plants in bloom or just coming into bloom, but when spring sets in they begin to start propagating cuttings of various kinds, or buy young plants that have just started. With plenty of fresh air and sunshine, they get quick results, and the cuttings soon develop into nice plants.

Some of the flowering plants grown here are primulas, cyclamen, begonias, cinerarias, geraniums, petunias, lilies, chrysanthemums, fuchsias, heliotrope, impatiens, etc. Primula obconica makes a nice house plant, as they bloom nearly all the year around. The new improved variety, Gigantea, is a very strong grower and blooms much finer than the old variety, and can be had in several colors. The Chinese primula is still a favorite. The colors are very striking, especially the deep red. Cyclamen still stands one of the foremost of winter flowering plants. They bloom freely for several months. Some of the newest varieties are very striking, especially the Butterfly, which is beautifully fringed and waved. The foliage is also very attractive.

Cyclamen and Primula obconica in their young stages will grow well in a sandy loam. Spray foliage often, with careful watering at the root. Overwatering at this stage will turn the foliage yellow. When you have good developed plants and ready to be repotted into five or six inch pots, use a good stiff loam with a dust of bonemeal or dried cow manure. After pots are well filled with roots, they will take a liberal supply of water. Chinese primula require very much the same treatment, except overhead watering. This variety is likely to damp off if water is allowed to settle in the crown.

Pick off all faded flowers and dead leaves. They not only spoil the look of your plants, but also help to create disease. Begonias, tuberous-rooted, are amongst the choicest flowering plants. They bloom in the summer season, single and double flowers of the richest colors. They can be grown from seed, but will need very careful treatment. It is better for the amateur to get one or two year old tubers. These can be easily started. A good plan is to let them sprout in damp moss before potting, as the bottom and top of the tubers are so much alike that you can hardly tell the difference. Be careful with watering until they have well started. For potting, use one part leaf soil, one part turfy loam, one part sand, and one part garden loam.

Some beautiful varieties can be had in the fibrous-rooted begonias. These are usually started from cuttings. The Christmas varieties are much admired. Glorie de Loraine have been popular now for over twenty years. The Cincinnati, a new and improved variety, makes a handsome pot plant. It may be a little difficult to start these in their young stage, but you are well repaid later for your trouble.

Geraniums.

Geraniums are the most useful plants of any I know. They can be used in so many ways, as a pot plant, or for window boxes, flower beds, etc. A few good varieties worth growing are S. A. Nutt, double scarlet; Universe, single scarlet; A. Riccard, double scarlet; Beaute Poitevine, double pink; Jean Viaud, double pink; Mrs. E. G. Hill, single pink; Wonder, single scarlet. Fall-struck cuttings make the best plants for summer flowering.

Do not use soil too rich for geraniums. Old plants that have been carried through the winter in many cases get far too much water, with the result that they are now leggy and very unsightly looking plants. They should have been kept on the dry side in the winter time, as with lack of air and sunshine they make all sappy growth. The best thing now is to cut them hard back and let them break again. The tops can easily be rooted in a mixture of sand and soil.

Chrysanthemums.

Chrysanthemums can be started from cuttings. Some varieties that will make good pot plants for October flowering are: Golden Glow, double yellow; October Frost, double white; Ladysmith, single pink. For November and December flowering: Nellie Pockett, double white; Cheltonie, double yellow; Kerslake, double white; Ivory, double pink and white; Emiline, single pink; Ger-

trude, single white; Rapheil Beauty, single red; Kitty Borne, single yellow. To grow good pot mums, start with healthy, strong cuttings. They will readily root in sand and soil. When cuttings are well rooted, put them into two and a half inch pots. When these are filled with roots pinch out the tops, which will make them break and give you the foundation. If you have not sufficient shoots they can be topped again later. Repot as required up to a six inch pot, which is large enough for them to flower. The ideal spot for young mum plants in the spring is in a cold frame. In the summer they may stand in the open. Select a spot where they will be sheltered from the wind and hot sun, otherwise the pots will dry out too quickly. Stand the pots on ashes to prevent the worms from entering the pots. They will grow outside until signs of frost. Use good, turfy loam for potting, and feed with liquid manure when buds are well set.

Hyacinths, daffodils, and tulips are now in bloom and help to remind us that spring is here. They make nice pot plants. People are growing more bulbs each year. Hyacinths are noted for their fragrance. They can be grown a single bulb, in a four or five inch pot, or three bulbs in a seven inch pot or pan.

Daffodils and tulips look best grown in clusters. These are usually planted in October and November. A mixture of good garden loam and well decayed manure suits bulbs. It is a good plan to stand the pots of bulbs in the cellar after you have given them a good watering, and to cover with ashes. In about six weeks they should be nicely sprouted, with pots full of roots and ready to be taken up to the light where they can have regular treatment.

Garden Suggestions for May

Henry Gibson

MAY is the month of the poets, the queen of the calendar, yet it is a month of many activities for the gardener. Nature has brought us to the threshold of summer and is whispering to us of the unfolding beauties that shortly are to be spread before us. The orchards will be white and pink, with a thousand temptations for the tuneful birds and buzzing bees. The iris will be unfurling its bannerets of royal purple and golden yellow. The tulips will add a glow of color to the beds and borders that ere long will be planted to more tender subjects from the greenhouse, and at last we will be made to forget that Jack Frost ever tried our patience with his wintry pranks.

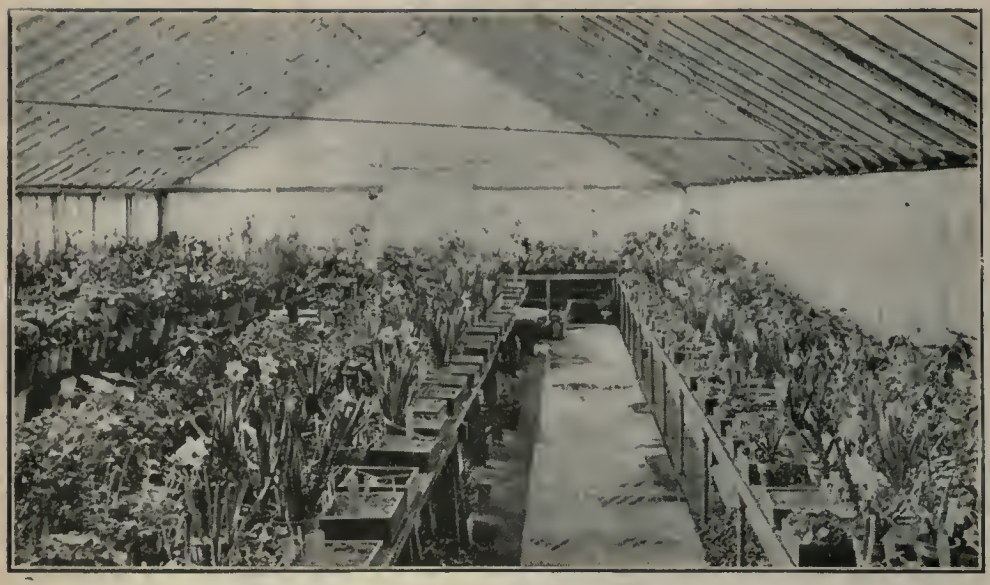
Now, when planting operations are going on, is the time to add some attractions for the songsters. There are innumerable varieties of shrubs that produce berries that the birds can feed on during the cold weather. Space forbids giving anything like an exhaustive list of the shrubs here, but we will mention a few off-hand as a sort of guide to go by: Morus Rubra (red mulberry), Prunuses, in variety, Cornus Alterifolia (blue cornel), Vaccinium Pensylvanicum (lowbush blueberry), Viburnums, in variety, Rhubus (thimbleberry), Sambucus Canadensis (common elder), Symphoricarpus (snowberry). More and more interest is being evinced each year in the preservation of our native birds, and much can be done by attracting them to the garden and around the house. It may be claimed by some, and it is true to a certain extent, that birds do a lot of damage in the garden by picking up the seeds that one sows, and eating the small fruits. Birds do not always, as is supposed, pick up the seeds from a newly-planted piece of ground. They are invariably after the grubs. The damage to the fruit can be overcome by planting a few mulberries in close proximity to the fruit patch. Birds prefer mulberries to either blackberries or raspberries. Sunflower seeds should be planted in a corner of every garden for the birds to feed on in the fall. Water should be provided in shallow receptacles, which may assume some ornamental form if the owner so desires, but let them be shallow.

The Flower Garden.

In normal seasons a number of the more hardy annuals can be sown in the open ground about the middle of May. The tender ones should be accommodated in a cold frame or mild hotbed. Commence to harden off those annuals that were started early in the hotbed or greenhouse, preparatory to planting out. Montbretias and gladiolus can be planted as soon as the ground is fit to work without being sticky. Gladiolus should be planted several times throughout this month and next, so as to have a succession of flowers all through the season. Dormant roots of dahlias may be set out, but where young, green plants are to be put out, it would be advisable to wait until all danger from frost is past. Dahlias are very tender, and the least bit of frost will render them useless.

Perennials that are still to move should be attended to at the earliest possible moment. Get the planting of

This unique and striking stone wall, which separates Spadina Park from the residence of Mr. A. W. Austin, Toronto, is a source of much pleasure to large numbers of people each year. It is 1,000 feet long.



The work of students in bulb culture at the Guelph Agricultural College, in the department where Mr. Wm. Hunt is the chief presiding genius.

shrubberies completed as soon as possible this month.

There are numerous varieties of hardy annuals that are close rivals of the best of the bedding plants. Many of them are very useful for house and table decoration. Moreover, by selecting different varieties these annuals may be had in bloom from June to frost. Almost all of them love plenty of sunshine, but there are a few that will thrive in shade. Among the latter may be mentioned nasturtiums. They do not require a rich soil at any time, and when grown in the shade no manure whatever should be used. Such subjects as poppies, mignonette and clarkias, when thinned to a foot apart, will branch freely and flower for two or three months.

Next to the sweet peas, the early hardy outdoor chrysanthemum is one of the best flowers for garden decoration. Old plants that have been protected in a cold frame over the winter months will now be throwing up strong growths and can be divided into several pieces each with two or three shoots. Plants obtained in this manner are very little inferior to those raised from cuttings. They should be planted firmly when set out in the garden and given a good watering as soon as planting is completed.

In addition to the gladioli and montbretias mentioned, there are some other bulbs that may be set out in May, and which will add color to the beds and borders later in the season when the beauty of the annuals is fading. Amaryllis of the old belladonna type, planted now, will enliven things with a rich variety of color during the latter days of August, as will crinums and Hycinthus Candicans. The latter is an excellent companion plant for delphiniums and similar tall-growing subjects. When planted in groups, Hycinthus Candicans produces a very pleasing effect when in bloom.

The Vegetable Garden.

Potatoes should be put in the ground as soon as possible. If you have had trouble with scab, don't hesitate to treat the seed with formaldehyde. One pint of the material diluted with thirty gallons of water is the regulation strength to use. The seed should not be allowed to remain in this solution for more than two hours. Be sure to lay the seed out to dry before planting.

Several sowings of peas, beans, and other vegetables should be made this month to provide a succession for the kitchen. No hard and fast rule can be laid down for this, at least as to the quantity, for each one must be guided by the quantity consumed. Late cabbage, cauliflower, and other brassicas may be sown. If you have early plants of melons and cucumbers to put out, wait until the end of the month, but in the meantime you would do well to sow a few seeds of these plants in the prepared hills. In doing this you are assured of a crop should those early ones you set out be caught by a belated cold spell. The seeds will not be up through the ground for some time, and therefore will survive any cold that comes along at this time of the year.

Make an effort to arrange the planting of the various crops in the vegetable garden so that those crops that remain in the ground all the season are all together. Among these we may mention Swiss chard, chicory, cardoon, artichoke, celeriac, parsley, parsnips, salsify, and New Zealand spinach.

All root crops that are liable to the attacks of maggots should have the ground dusted with soot previous to planting. Many growers use and recommend lime, but personally we prefer the soot, and use about one quart to twenty feet of drill.

The Invalid's Garden

By Eunice Buchanan

If there is a delicate person who needs some interest to draw him out of doors, try a small cold frame in a sheltered, yet sunny spot. The frame can be of the professional type, or it can be an ordinary home-made affair, of four sides, and a storm window for lights. Take out the soil within the square for a foot, or even two feet, and fill in the hole with rich friable soil, to which has been added a quantity of rotted manure.

The invalid may not be the only member of the family who desires such a garden, especially if they patronize the seat put beside it, or a comfortable bag of hay, or other kneeler put there for the invalid to work upon. A good steel trowel is a necessity, while a garden box fitted with tools, and a watering can add to the pleasure. A set of children's garden tools is also useful, especially for working at the back of the frame, where it is difficult to reach with the short handles.

A square wooden box is easily made into a garden "basket" by nailing a piece of barrel hoop over the centre for a handle, and tacking straps inside for the accommodation of scissors, weeders, hand fork, labels, seed packets or what ever the gardener fancies; but an ordinary four-tined table fork will, with the aid of the trowel, do nearly all the intensive culture needed.

The choice of flowers to be grown, naturally rests with the owner, but I have found that nothing gives greater satisfaction than pansies, which by shutting the frame on cold nights dur ing spring and late fall, give an enormous quantity of blossoms from one end of the season to the other. Of course it is necessary to pick the flowers before they form seed, and here enters the joy of giving.

The little English daisy also gives a continuous supply of flowers, if treated in the same way. Where the plants are close together, and the ground moist, slugs will appear, also there are little worms which eat the pansies, but these may prove blessings in disguise, and give the owner an extra excuse to pet the plants.

There are also annuals which may be selected from the catalogues, thus allowing the invalid to share the pleasure of the ordinary gardener's plans before the spring comes. Carnations answer well to this treatment, the frame affording, with the evergreen brush laid on, sufficient protection for the winter. We leave the frame open all winter, but cover with brush.

If annuals have been grown, the frame should be dug and put in order

after the frosts of fall, when a variety of bulbs may be planted in rows, marking the end of each row with a stake, and putting a label to each variety. The rows should be arranged to allow intercropping of annuals in the spring

Pointers in Potting

John Gall, Inglewood, Ont.

THOUGH it may seem a simple matter enough on the surface, there is a good deal in potting plants properly. The pots should be well drained, using for this purpose pieces of broken pots, and placing one large piece over the hole in the bottom of your pot. A little sphagnum or rough material of some kind should next be placed over the crocks to keep the soil from being washed down and blocking the drainage. Then put an inch or so

Turning plants out of pots.

of the soil before placing the plant in position, and fill in with the compost, pressing this down rather firmly with the fingers until the pot is nearly but not quite full. (See Figure 4.)

If the pot is overfilled (see Figure 1), insufficient room is left for watering, while, if not filled full enough, not only does the pot not contain enough soil, but the plant is liable to become "drowned" when water is given. (Note Figure 2.) Figure three depicts a plant potted on one side—a clumsy if not hideous style; and Figure four, a plant potted properly. There ought always to be enough space left between the top of the pot and the surface of the soil to permit giving sufficient water to saturate the whole of the soil and moisten all the roots.

Some people seem to throw the plants into the pots almost anyhow, and still they grow and do well—just a large piece of crock over the drainage hole (sometimes not even that), and then perhaps a few of the rough lumps of the compost being considered quite sufficient. This plan may answer well enough in a country garden, where plants seem to thrive under any condition, but too much care cannot be taken in the town garden. "What's worth doing is worth doing well," is an old adage that should not be forgotten, even in the potting of plants. Something always depends upon the state of the soil or compost. If it is sufficiently coarse or porous, comparatively little drainage will be necessary, but, if at all fine, plenty should be given. Plants that require much water, such as spiraeas, etc., should also have plenty of drainage. In fact, I believe in this in almost all cases, as, if a little too much water is given at any time, no harm is done. Most plants, especially those of the "hard-wooded" or shrubby type, require to be potted very firmly —that is, to have the soil made almost hard in the pots—but in the case of soft-wooded plants, generally, pot rather loosely for rapid growth, and more firmly for early bloom.

Illustration two shows exactly how a plant should be turned out of its pot for purposes of examination. Figure C shows the correct placing of the drainage, one large piece of crock being shown with the hollow side downwards (as it would be were the plant replaced in the pot as at D). This should always be sufficiently large to well cover the drainage hole at the bottom of the pot, and any other material for drainage, such as smaller crocks, should surround it, while a little sphagnum (moss) should be placed above it, so that the compost may not be washed through. This latter, if of proper constituents, that is, containing a certain amount of sand, fibrous loam, and leaf mould, can hardly be made too firm by fair means, but a soil composed solely of heavy garden loam will have its porosity endangered if rammed about the roots with undue vigor. In all potting operations, see that the roots of the plants are laid out in the soil, that is to say, they should not have the soil

Good and poor potting.

thrown on them, but among them. It is wise also, generally, to finish off with a surfacing of sand, while the compost should be slightly lower at the rim of the pot than at the collar of the plant.

The Flower Border

It is best to locate the flower border at the side or back of the lawn, rather than make it too prominent a feature in the front yard. It shows to best advantage against a background of shrubbery, or near a building or fence, which can be covered with vines and climbers. The size of the border need be limited only by the extent of the grounds and the time that they can be put upon it. A border with irregular outline varying from five to ten feet in width is preferable to a narrow one between straight boundary lines.

The ground for the flower border should be prepared deeply and thoroughly, and be made as rich as possible by digging in plenty of well rotted manure or compost. The work of stocking a border may be done at various times throughout the season. Early in the spring is the best time to sow seeds and do most of the planting; the transplanting of seedlings may be done at any time during the season when the ground is moist. Hardy bulbs and tuberous rooted plants should be planted in the fall.

This beauty spot was situated in St. Thomas and was the work of the St. Thomas Horticultural Society. The bed was planted by the owner. The urn was owned and planted by the society. Varieties of flowers for the bed were suggested by the society.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated The Canadian Bee Journal.
Published by The Horticultural Publishing Company, Limited,

PETERBORO, ONTARIO

H. BRONSON COWAN, Managing Director.

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1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests. The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, and of The Canadian Horticulturist and Beekeeper, $1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising rates, $1.40 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December 1915. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 13,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1915	11,158	August, 1915	10,294
February, 1915	10,942	September, 1915	10,067
March, 1915	10,864	October, 1915	10,017
April, 1915	10,917	November, 1915	9,704
May, 1915	10,927	December, 1915	9,253
June, 1915	10,329		
July, 1915	10,448	Total	124,920

Average each issue in 1907 6,627
Average each issue in 1915 10,410

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not apply their trade at the expanse of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honorable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

Home Market Conditions

We have so definitely accepted the expectation that the population of Canada during the next few decades is destined to increase by millions, and our home markets in proportion, that we are apt to overlook other factors in the situation which may prevent these home markets from consuming as much of the products of our farms and orchards as might otherwise be expected. All history shows that as the population of a country increases, and towns and large cities spring up, the poverty of the masses grows with even greater rapidity. As the free land of the world has become occupied, this tendency has increased. It seems destined to increase even more rapidly during the next few decades than ever before.

Anything which tends to impoverish the masses automatically reduces the value of our home markets as consumers of fruit in a like proportion. If, in cities like Toronto, Montreal and Winnipeg, the proportion of people earning less than enough to enable them to buy fruit for family consumption is increasing, the consuming power of these cities, as far as fruit growers are concerned, is decreasing in the same ratio. What, then, are the conditions?

In the April issue of The Canadian Horticulturist, reference was made to the final report of the Commission on Industrial Relations appointed by Congress in 1912 to investigate industrial conditions in the United States. The report of this commission was made public last fall. The commission reports, after investigating conditions in all parts of the United States, that, while in some lines of industry higher wages are being paid than ever before, the lack of steady employment is annually driving hundreds of thousands of otherwise productive citizens into poverty and bitter despair, and thus, to use the words of the report, is "sapping the very basis of national efficiency and germinating the seeds of revolution." Between one-fourth and one-third of the male workers, eighteen years of age and over, in factories and mines, earn less than $10 a week; from two-thirds to three fourths earn less than $15, and only about one-tenth earn more than $20 a week. This does not take into consideration the loss of working time for any cause. From two-thirds to three-fourths of women workers in factories, stores or laundries, and in industrial occupations generally, work at wages of less than $8 a week. Against this condition of the working classes the commission reports that wealth is concentrating in the hands of a few to such an extent that one private fortune in the United States is equivalent to the aggregate wealth of two million five hundred thousand of those who are classed as poor, who are shown to own on the average about four hundred dollars each. A little less than two million people own twenty per cent. more of the nation's wealth than the other ninety million.

The report makes it clear that this condition is extending, and that it is beginning to menace the welfare of the nation. On this point the report says: "While vast inherited fortunes automatically treble and multiply in volume, two-thirds of those who toil from eight to twelve hours a day receive less than enough to support themselves in decency and in comfort." Two of the commissioners, in a supplemental report, state "that hungry, poorly-clothed, and without the opportunities that a fully-rounded life requires, these people become filled with a sullen resentment that bodes no good for the future of the Republic; unrest exists in some instances to an alarming extent. These people have no regard for law or government, and are in reality a latent volcano, as dangerous to society as are the volcanos of nature to the landscape surrounding them. Thirty thousand workers in a single strike have followed the leadership of men who denounced government and call for relentless warfare on organized society."

What has all this got to do with us? Only this, that when we discuss marketing problems we should recognize that fundamentally they are much larger than most of us have yet realized. We have got to grapple with and settle transportation rates, the introduction of co-operative methods, the better grading and packing of our fruit, and similar features of the situation, but we must recognize also that even were these all settled there are still larger problems rapidly forcing themselves to the front which must be dealt with also. Our own prosperity and welfare is involved in their proper adjustment.

Mother's Day

The observance of Mother's Day has leaped more suddenly into public favor than its modern originators could have anticipated. Only five years ago, those who advocated the claims of this day for general observance were looked upon by many as faddists and received but scant attention. In Canada some people opposed it as a whim imported from the United States. To-day, the day is observed by millions on both sides of the line.

This year, Mother's Day will fall on Sunday, May 14th. At first the custom was to wear a red flower for a mother living, and a white flower for a mother dead. The popularity of the day has been such, however, that florists have been unable to supply the demand for flowers, and thus the public has been led to purchase and wear flowers of any color irrespective of what the color was supposed to represent. To-day, the original distinction in color has practically disappeared.

A pleasing feature of the celebration of the day has been the tendency of Sunday schools and churches to hold special services or to devote special attention to it in connection with their regular services. This custom is extending. This year the day is likely to be more generally observed than ever before. Let us do what we can through observing it to honor not only our own mothers, but to bring pleasure to the hearts of all mothers, and at the same time teach children to appreciate more fully the beauty and worth of a mother's love. World conditions this year should lead us to observe the day with unusual tenderness.

The War's Influence Appearing

The economic effects of the world situation brought about by the war are only now becoming apparent to the majority of people on this continent. The advancing cost of many necessities is leading us to realize that it is impossible for twenty million men to be fighting one another in Europe, and as many more people to be employed in the production of ammunition and other war requisites, without the production of the comforts and necessities of life being tremendously reduced and their cost increased in proportion. When the war broke out, the stocks of retailers, wholesalers and manufacturers in most lines were abundant. As time has progressed, however, these stocks have been depleted until

now the margin in most lines is small indeed, and in many lines has been wiped out.

As pointed out elsewhere in this issue, the cost of grape twine has increased from ten cents to twenty-five cents a pound, and of blue stone from fifteen cents to thirty cents a pound. These advances are typical of similar advances that are taking place in many other lines. The supply of woollen goods has become so depleted that they can hardly be obtained. The price of certain inks used in the publishing business has advanced from twenty-five cents to a dollar and a half to two dollars a pound. The public as yet does not realize this condition. The thrift campaign that has been inaugurated by the Dominion Government is therefore timely and necessary. If the war continues much longer it is going to be necessary for all of us, including those in comfortable circumstances, to exercise every economy to make ends meet. The interests of the nation require that we should start now if we have not already done so.

Each year when the spring fever makes itself felt, thousands of amateur fruit and flower growers feel the impulse which first stirred them as children to dig in the earth and grow things. With many the impulse dies almost as soon as felt. With others a half-hearted start is made but is soon abandoned. The proportion of those who proceed and succeed is lamentably small. One reason for this is the lack of helpful information in regard to how to grow even the most common flowers and vegetables. Early this spring horticultural societies would be well advised were they to appoint press committees to deal with this situation. These committees might clip helpful articles, such as several of those, for instance, which appear in this month's issue of The Canadian Horticulturist, and hand them to their local paper for publication. Every paper in the land is free to republish the articles that appear in The Canadian Horticulturist. Probably there is no one way in which societies could accomplish more helpful work than by making public timely, practical articles just when needed.

At the recent session of the Ontario Legislature, the fine for spraying fruit trees in bloom was increased from one dollar to five dollars. The reason for the amendment was the fact that many fruit growers were not deterred from spraying their trees by the formerly small fine. The article in this issue of The Canadian Horticulturist, by Prof. Hewitt, showing the marked influence bees have in fertilizing fruit blossoms, reveals how important it is that bees shall be protected from poisonous sprays during the blooming season. It is in the interest of fruit growers that the statute shall be enforced.

PUBLISHER'S DESK

Our front cover illustration shows a scene in the garden of Mr. John Drust, of Benmiller, Huron Co., Ont. Were the promised bloom there shown to be realized this year in the orchards of the land the question of over-production would then be serious.

Some time since we received an interesting typewritten article entitled "Greenhouse Problems," which appeared to be the manuscript of an address delivered at some meeting of fruit or vegetable growers. As the name of the author was not furnished with it, we have been holding it. Information as to whom this article was by will be appreciated.

One of the oldest subscribers of The Canadian Horticulturist is Mr. Chris. Firth, the secretary of the Durham Horticultural Society. Mr. Firth is one of a very few, we believe less than half a dozen, men who have taken The Canadian Horticulturist every year since its inception in 1878. In a letter to The Canadian Horticulturist, received during April, Mr. Firth expressed the belief that he had been taking The Canadian Horticulturist since 1873. This, however, could not be the case, as The Canadian Horticulturist was not started until January, 1878. However, Mr. Firth was probably a member of The Ontario Fruit Growers' Association in 1873, which five years later started The Canadian Horticulturist. The long continued association of Mr. Firth with The Canadian Horticulturist and his loyal support is much appreciated by all connected with it. We trust he will continue a regular reader for years to come.

One of the interesting features of the June issue of The Canadian Horticulturist will be an article entitled "The Control of Enemies of the Rose," by Mr. F. E. Buck, of the Central Experimental Farm, Ottawa. Mr. Buck's articles are always practical and helpful and this one will be especially interesting to rose growers.

Horticultural societies that would like us to send sample copies to prospective members are requested to send us lists of names and addresses as early in the spring as possible. This is an excellent method of obtaining new members where The Canadian Horticulturist is given as a premium.

* * *

We have openings for subscription representatives in the leading fruit districts. Those interested are invited to write to us direct.

SOCIETY NOTES

The St. Thomas Tulip Show.

Great preparations are being made by the members of The St. Thomas Horticultural Society for the Festival of Tulips which will be held in St. Thomas, May 11 to 14. The festival will be conducted under the auspices of The Ontario Horticultural Association. Everything will be free. Some two hundred varieties of tulips of every shade and color will be on exhibition. The public beds along the streets contain 25,000 tulips and the parks and private gardens have 200,000 more. It is expected that these will be in full bloom. A cup is being offered to the Society making the best display of twenty-five varieties of five blooms each, and a medal for the best five blooms of any one variety. Sunday, May 14 will be known as Tulip Sunday. Special rates have been granted by the railroads. Societies that can conveniently do so might find it profitable to send delegates.

Hamilton.

The illustration of Hamilton boys with bird houses of their own construction published elsewhere in this issue shows an interesting line of work conducted this year by the Hamilton Horticultural Society. Under the auspices of the society a series of garden Arts and Crafts Exhibitions is being conducted. The first of these was the bird house section. Fully two hundred bird houses were presented for competition. The competitors were members of the manual training classes of the city. The exhibits were shown in one of the city stores. Some of the bird houses were sold by the boys, the proceeds being turned over to the Red Cross funds. The Boys' Scout bird house display will be staged shortly and the Garden Stands Section about the same time. The May meeting of the Society will take the form of a trip to Dr. Clark's tulip garden at Grimsby.

Export Apple Trade

By F. H. Grindley, B.S.A., Assistant to the Fruit Commissioner, Ottawa

OWING largely to the fact that cargo space on transatlantic steamers is considerably restricted, fruit shippers have met with some difficulty this year in the matter of delays in transit. After arrival at British ports, fruit is frequently left in the ship's hold for periods extending sometimes as long as two weeks. These delays result in a deterioration of the quality of the fruit and a consequent falling off in the prices received by the shipper.

Recently, too, when the matter of limiting the imports of certain commodities was under consideration by the British Government, many classes of fruit (including apples) were listed. For several days this caused quite a panic among English fruit dealers, inasmuch as such a move would very seriously affect about two hundred thousand of these men in that country. Fortunately, apples were later removed from the list, and Canadian shippers now have an open market in England for that fruit, provided that the necessary vessel space can be obtained.

There are, however, so many shipments of more necessary food stuffs, etc., being imported into Great Britain that apples are sometimes delayed at points of export. Twenty-five carloads (5,000 barrels) of Ontario apples, consigned to England via Boston on the s.s. Franklin, were "held up" at the latter port on account of the vessel being unexpectedly commandeered by the British Government. A serious situation resulted, inasmuch as there was no other vessel leaving Boston for four weeks, and the local market was already supplied with fruit.

We have been advised by Mr. J. Forsyth Smith, Canadian Government Fruit Trade Commissioner, of Leeds, England, that a similar situation, or one even more pronounced, will exist when the next apple shipping season opens, and we feel that Canadian shippers will do well to take any steps which may lead to a more satisfactory consideration of their interests.

It is not possible to predict just what conditions will surround the Canadian export fruit trade in six months' time, but it seems reasonable to suppose that if the home demand can be increased there should be no difficulty in disposing of an average crop, especially as the quantity of American apples imported into Canada promises to be considerably below normal.

Items of Interest.

The death took place in February of Mr. Thos. H. Cunningham, Inspector of Fruit Pests for British Columbia. Mr. Cunningham served the Board of Horticulture of British Columbia for many years, with zeal that made his name known throughout the province. Much of the freedom of the province from serious pests is due to the efforts of Mr. Cunningham to prevent the importation of infected stock.

Co-Operation in the Niagara District*

J. R. Hastings, Winona, Ont.

IT seems to be the prevailing opinion among the fruit growers of the Niagara Peninsula that it has become advisable, if not absolutely necessary to do something —to take some step calculated to bring a measure of relief to the fruit grower and to place the fruit-growing industry on a more satisfactory basis. The question as to whether or not cooperation offers the much-needed relief, and whether co-operation on an extended scale can be put in successful operation in the Niagara Peninsula is being much discussed.

We have in the Niagara Peninsula a number of organizations supposed to be working along cooperative lines. Some of them have not been very successful, through no fault of cooperation, however, but rather for the lack of cooperation as well as for other reasons. A few have met with a fair degree of success—are bringing to their members results as satisfactory as can be expected under present conditions and methods of marketing and these give promise of greater strength and usefulness. We may here ask if cooperation on a very limited scale and under the most adverse conditions imaginable brings to its members better results than the average fruit grower is receiving is it not reasonable to suppose that on a more extended scale, with greatly increased strength and with the adverse conditions largely eliminated, it will bring added benefits and satisfaction to its members?

Every man who has given the matter intelligent consideration admits that better results, financial and otherwise, come from successful cooperative endeavor than from individual effort. I am speaking now of the average individual, not the man who raises far above the average quantity of fruit. We have fruit growers who can market their fruit crops to the best advantage, perhaps as well or better than a cooperative, but it ends there. It is the rank and file of the fruit growers we are considering, the submerged nine-tenths, the fruit growing industry as a whole.

The money end should not be the only consideration. Well ordered cooperation will bring to its devotees benefits that cannot be measured in dollars and cents. The man whose mental make-up renders it impossible for him to average up all the results and remain steadfast and loyal to his organization will never become a good cooperator, and it is doubtful if he should be allowed to enlist under the banner of cooperation. He is one of the misfits of the fruit growing business—he will be constantly tempted by the extra cent or nickle per basket that will be dangled before his eyes, probably by some interest antagonistic to cooperation.

Benefits of Cooperation.

What claims then do I make for cooperation? I have in mind, of course, a properly organized company, every detail thoroughly systematized and hammered into shape and efficiently managed. Whoever heard of such a concern going to the wall? Such organizations do not fail—they live and flourish, or, having served the purposes for which they were created, pass gracefully and orderly out of existence.

Successful cooperation will relieve the fruit grower of the task of marketing his fruit and enable him to give more attention to other details to which he is better qualified to attend.

*An address delivered at the last annual convention of the Ontario Fruit Growers' Association.

It will give him the best prices for his product that under all the circumstances he is entitled to receive and higher average prices than he could otherwise get.

It will furnish his supplies of practically all kinds at lower prices than he could get in any other way.

It will not act as a panacea for all his fruit growing ills, nor will it enable him to eat the bread of idleness, but if he is possessed of a sound mind and healthy body it will stimulate his interest in his work and render less irksome some of its tasks and by so doing will make him a more contented and satisfied man—a better citizen, therefore a more useful member of society.

No—it will not of itself take him to Heaven, but will go a long way towards keeping him out of the other place. Order is Heaven's first law, also one of the cardinal principles of cooperation, hence the fruit grower who attains order is already on his way to better things.

In some communities, I understand that the man who does not belong to a cooperative organization is not looked upon with much favor by the other church members, and the banks view him with an eye of suspicion.

There is not a single detail in the fruit grower's business experience which may not be benefited by cooperative effort. It has been said that the training of a child should begin before it is born, and so with cooperation. It should begin its work before the potential orchardist plants his trees, and I do not know of any reason why it should not aid him in the selection of his land. I imagine an organization handling annually a million or more dollars worth of fruit would be a better judge as to the varieties to set out and the land best adapted to the different varieties than the average real estate man or nursery representative.

Well ordered cooperation would have thoroughly qualified men, part of whose duties it would be to give advice and guidance in all matters, such as planting, pruning, spraying, cultivation, picking and packing. The organization would act as a clearing house for all details affecting the business welfare of the individual members.

And now we ask—is it possible to put such an organization in successful operation in the Niagara Peninsula? In my judgment it is practicable. The western end of the peninsula at least offers an ideal field for the venture but, let me say, that no attempt should be made to put such an organization in operation until every detail has been put in perfect shape and the whole structure made ready for the work to be done. This will be no easy task and will require the active assistance and support of those men who have had many years experience in the marketing of the fruits of the district, as well as all other branches of the industry. There are many problems to solve—many situations to meet—which are peculiar to our particular district and its products and which will have to be dealt with in a special way since there are no experiences that I know of which will be a sure guide for us.

We will have to work out our own salvation. It can be done if the fruit growers feel that they are ready for it. The main thing is to have a fruit growers' organization, an organization controlled by the growers, with the fruit growers in charge of their own business.

Two plans of organization have been considered—one patterned after the California Fruit Growers' Exchange and a number of others already in operation both in the United States and Canada. The California Exchange is, as you know, simply the selling agency for a great many local concerns scattered over hundreds of miles of territory—handling the products of these local organizations in car lots to the large centres and mostly on consignment. While this plan might in a measure succeed in the Niagara Peninsula it is not the one best suited to our needs.

I ran across an article some little time ago which referred to an organization which had decided to discard the Central Selling Agency as an unnecessary and useless appendix, and I think, if adopted by our district, we would soon have on our hands a very bad case of appendicitis.

The nature of our business requires that there must be close connection, a much closer cooperation than in those cases where only car lots are handled and which, to a considerable extent, go to the large centres, much on consignment.

I would not, for the present at least, suggest one organization for the whole Niagara Peninsula. It might be better to consider two organizations—one for the Western end and another for the Eastern—and I do not know of any reason why a third could not be organized to include the district from Hamilton to Toronto, and the three work in harmony.

I have been asked if a growers' organization, controlling practically all the fruit of the district, should become a reality, what about the dealers who at present are our largest distributors? What about the commission men?

Our dealers, some of whom are large growers, should become members of the growers' organization and some of them, and all those who are growers, should be asked to maintain their present selling organizations and continue to act as distributors operating, however, in strict cooperation with the growers' company. In that event the dealers would get their fruit from the organization instead of from the individual grower, and I know of no good reason why an arrangement along these lines, satisfactory to all interested, could not be put into effect.

We have some excellent men in the commission business whose services in handling fruit in the large centres could not well be dispensed with. However, the relation at present existing as between grower or shipper and commission man would be somewhat altered, and in the course of time this branch of the business would come directly within the control of the growers' organization.

Some time, when the horizon of the farmer and fruit grower extends itself, when cooperation has spread abroad over the land, there will be in each large centre in the Dominion a Produce Exchange under the control of the producers' organization where farm products of all kinds will be handled. When the fruit growers' organization has once got well on its way, when the leaven of cooperation shall have begun to exert its power and influence, the dealer, the commission man, each interest will, without sacrifice, fit into some useful niche in the new order of things.

Enclosed you will find $2.00 for my subscription to The Canadian Horticulturist up to September, 1918. I always give my copies of The Canadian Horticulturist away, as even after they are a year old they are always useful.—Signed: W. R. Puckey, Coal Creek Mines, B.C.

Apples in Boxes and Barrels*

C. W. Baxter, Dominion Fruit Division; Ottawa

THOSE who have visited the Prairie markets, especially in Western Saskatchewan and Alberta, will have noticed the small proportion of apples offered for sale in barrels. In many towns and small cities, we could not find a single barrel of apples. In answer to inquiries as to why these conditions prevailed we were told that it was because of the past misdeeds of the few eastern shippers who had practiced "Boot-legging" or "stove-piping." Again we were told that if Ontario growers want to sell their apples on these markets they must pack them all in boxes, and not being satisfied with this answer we continued our inquiries and concluded that the reason was largely a question of prohibitive freight rates. However, Ontario growers are not likely to worry over these markets. They realize that British Columbia can very well take care of them.

The trade channels through which most of the boxed apples have been sold in the markets, on both sides of the International Boundary from Saskatchewan and Minnesota East are the hotels, fruit stores, fruit stands, apartment houses and private homes. The hotels, restaurants and fruit stands use practically nine-tenths of the total. Why do they prefer to pay a higher price for apples in boxes rather than in barrels? Taken in the order named, some of the reasons may be, "that the hotels and restaurants prefer them because the fruit is of uniform size and quality, if they want apples for baking or pastry they can get them uniformly large, if for serving for fresh fruit, uniformly medium to nearly medium size. Caterers have the individual cost of serving the public figured out to a fine point and uniformity in size helps them to carry this out in practice. Fruit stores and fruit stands prefer them because of the uniform size, color and quality. The fact that the number of apples contained in the package is marked on the outside is considered a decided advantage and aids the dealer in determining whether the apples will be sold at five cents each, two for five cents, or three for ten cents. The profits on apples sold in this way usually range from one hundred per cent. to three hundred per cent. seldom less than one hundred. To increase the consumption of apples by handling greater quantities at smaller profits is never considered. The proportion used by consumers in apartment houses has been limited, in private homes very limited.

Has the eastern Canadian apple grower been getting his share of this business? We find the answer in the large quantities of apples imported into eastern Canada annually. Does the eastern Canadian grower grow apples of sufficiently high quality to warrant his going after this trade? The quality is unexcelled. Is this trade worth catering to? I think it is; but if you intend to cater to this class of trade, you cannot afford to lose sight of the fact that the commercial standard for apples in boxes has been placed at a very high point and unless this standard is reached and maintained, there is no advantage in packing in boxes. The Inspection and Sale Act does not require a higher standard for apples in boxes than it does in barrels, but the standard has been set commercially. Wrapping apples of low grades in paper and putting them in boxes, as some of our eastern growers have done, will never gain this trade. The disappointment to the purchaser is a detriment to the whole industry.

There is an established trade for apples packed in boxes, though it is limited. Every grower should be in a position to take advantage of this trade should the opportunity offer.

*A paper read at the recent annual convention of the Ontario Fruit Growers' Association.

Douglas Gardens

OAKVILLE, ONT.

Antirrhinum (Snapdragon), including silver pinks, each 10 cts.; 10, 60 cts.

Asters (China), six sorts, including upright white and shell pink, 10 for 25 cts.; 100, $1.25.

Begonias, Fibrous-rooted, 3 for 40 cts.; 10, $1.00.

Geraniums, 5 sorts, each 10 cts.; 10, $1. do. Strong plants, 10 for $1.25 per express.

Pansies, Mixed colors, each 5 cts.; 10, 40 cts.

Salvia, Bonfire, each 10 cts.; 10, 75 cts.

Stocks, 10 weeks, each 5 cts.; 10, 25 cts.

Dahlias, 10 sorts, strong plants, each 15 cts.; 10, $1.25.

Gladiolus, America, 3 for 25 cts.

Gladiolus, Mrs. Francis King, 3 for 20 cts.; 10, 60 cts.

Gladiolus, Peace, 3 for 55 cts.

Gladiolus, Spring Song, 3 for 25 cts.; 10, 70 cts.

Gladiolus, Unnamed, light colors, 10, 35 cts.; 25, 75c.

Gladiolus, Unnamed, red, 10, 30 cts.; 25, 65c.

Planting List sent on request.

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AYLMER SPRAYERS have won Medals and are used by seven Governments

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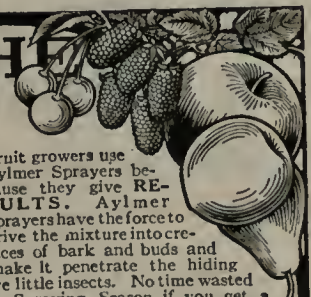


Fruit growers use Aylmer Sprayers because they give RESULTS. Aylmer Sprayers have the force to drive the mixture into crevices of bark and buds and make it penetrate the hiding places of the destructive little insects. No time wasted on repairs during the Spraying Season if you get a Sprayer that DOES NOT GET OUT OF ORDER. Any man who has had the exasperating experience of having to stop on account of loose "packing" on the pistons, will be glad to own an Aylmer Sprayer. It is the only Sprayer constructed without troublesome "packing." In the Aylmer, the pistons are made tight by three bronze expanding rings, the same as the pistons in automobile engines. This Sprayer is easy to pump and there is no pressure leakage; every ounce of pressure being turned into spray work. Agitators prevent clogging; nozzles are up-to-date; throw full distance and with full power from a stream to a spray. Every part designed to give perfect service. Prices low. FREE GUIDE TO SPRAY MIXTURES sent on request.

Aylmer Spra yer Outfit D

Fig. 176

Pump complete, 10 ft. hose with couplings attached, 2 Friend Nozzles, 1 Brass Stop Cock, 1 Y, 1 long Iron Extension Rod, without barrel, **$20.00.** Lined Bamboo Extension Rod in place of iron, $2.00 extra; with barrel, $4.00 extra. Shipped prepaid to any station in Ontario.

Aylmer Pump and Scale Co. Ltd.

WATER ST., AYLMER, ONT.

Give Your Horses A SPRING HAIR CUT

Fine and Fit

for the warm weather

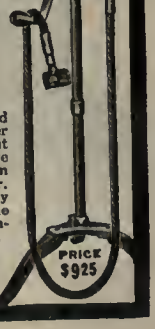
When the heavy coat that holds the wet sweat and dirt is removed they get more good from their feed, are healthier and work better. They are more easily kept clean, and their improved appearance greatly adds to their selling price. It also pays to clip the flanks and udders of your cows—you get clean milk. Clip them with the

Stewart

Ball-Bearing

Machine

It turns easier, clips faster and closer and stays sharp longer than any other. Gears are cut from solid steel bar. They are enclosed, protected and run in oil; little friction, little wear. Has six feet of new style, easy running flexible shaft and the celebrated Stewart single tension clipping head, highest grade. Price complete $9.25.



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THREE BANDED ITALIAN QUEENS

Bred from imported mothers. Guarantee that all queens will reach you in good condition and to be purely mated.
April 1 to May 1.

Prices.	1	6	12
Untested	$ .75	$ 4.25	$ 8.00
Select Untested	.90	5.00	9.00
Tested	1.25	7.00	13.00
Select Tested	2.00	11.00	20.00

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WE STILL MAKE FOUNDATION FOR SALE

We will buy your wax or make it into the best grade of foundation at low rates.

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Rt. No. 5, Chatham, Ont.

PRODUCTIVE BEEKEEPING

is the title of a new book of 326 pages by Mr. Frank C. Pellett, State Apiarist of Iowa.

As the name of this book indicates it is especially adapted to the needs of the practical beekeeper. Not a discussion of scientific principles, but of practical methods.

Sources of Nectar, Wintering, Marketing, and Laws that Concern the Beekeeper, are titles of chapters of special interest.

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We offer this latest book with the American Bee Journal one year, both for $2.00, Canadian postage 15 cents extra.

134 illustrations, attractive cloth binding.

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NOTICE TO CANADIAN BEEKEEPERS

We are making a specialty of the pound package trade. Our improvement on the package, making it larger and lighter and giving it more ventilation, enables us to guarantee its safe arrival. We will ship from our yards in Alabama during April, May and June, packages and queens at the following prices:

Pound package without queen, $1.25—with queen, $2.00; 2-pound package with queen, $2.65—without queen, $1.90; 3-pound package with queen, $3.50—without queen, $2.75. Queens, untested—one for $1.00, six for $4.50, 12 for $8.50. Select, tested, $2.00; breeders, $3.00.

Our stock of 3 band Italians have stood the test for 20 years; there is none better. We guarantee them to be free from disease. Pure mating and no inbreeding. Your money refunded if not satisfied. We sold the A. I. Root Co. two carloads, and will sell them this season. Our aim is to carry a surplus of stock so as to fill all orders by return mail. 5 per cent. discount on all orders before March 15th.

Reference—American Exchange Bank of Apalachicola, Fla., and the A. I. Root Co.

After March 15th our address will be Fitzpatrick, Ala.

MARCHANT BROS., SUMATRA, FLA.

THE SIBBALD WAX PRESS

Cheap, Strong and Efficient

NOW is the time to render that pile of old combs into nice cakes of yellow wax. The SIBBALD PRESS is just the machine for the job, it will soon pay for itself in the extra wax obtained. Wax taken in payment or in exchange for goods of any kind.

Two sizes—19 in., $9.50; 13 in., $6.00.

The HAM & NOTT COMPANY, Ltd., Brantford, Ont.

The barrel we have had with us always in eastern Canada. If eastern apple growers were asked to choose one package only, ninety-nine per cent. would choose the barrel. We have made some improvements in our methods of packing and grading in barrels during the past few years, but the progress has been slow. Our apples are given the preference over our competitors to the south of us in the European markets, and on reading the comments of our competitors, as to the reason for this preference, we find that they give considerable credit to our legislation, the Inspection and Sale Act. If we are to maintain this preference we must improve our methods of packing and grading. Fruit legislation and apple packing laws are live topics in the United States. Apples from the state of Maine have been forging to the front. Virginia, too, has made progress, and during the past year, New York State with her four million barrels, through her apple packing laws has made rapid progress. In fact, we are told that the growers in that state were able to sell their apples in markets where, previous to this year, they were debarred because of the unreliable methods of packing and grading. Now, there may not be any cause for alarm; but as progressive apple growers, you cannot afford to lose sight of what your competitors are doing; you must not only hold the markets you now have, but reach out for wider markets.

In what way can we improve our methods of packing in barrels?

By improved methods of production, spraying, thinning, pruning, etc.

By more careful packing and pressing. Over-pressing is one of our greatest evils in barrel packing.

By more careful picking and handling of our apples.

By more careful grading.

By having fewer low grades and when we have them to put them where they belong, through the evaporator, the cider mill and the vinegar factory. We have had our lesson this year in packing cider apples."

The question of packages for apples, like that of all other fruit, is largely a question of markets. Every grower should, as far as possible, be in a position to avail himself of any advantage in marketing, by being prepared to pack his fruit in any legal package which that market demands.

How Not to Cooperate

If you hear of a local company about to be organized, go and meet with them and pretend to help them, and by doing so persuade them to engage an agent of one of the speculators as their manager. This man should be intelligent enough to handle the affairs in such a manner that the co-operative members will be discouraged. Another effective plan is to advertise that you have made a tremendous price for your produce. This is always safe because no one can disprove it, and if it came to a show down you could always withhold your bad account sales, and put in all your good ones.

It will quickly be seen that you have a big advantage over the Co-operative Company because they have to pay out on the price they publish, while you simply have to say yours is so much. There is another good feature of this method; it may be that something is necessary to reassure your creditors, and by the above trick you accomplish that and hit the co-operators at the same time. If all of these suggestions do not work, then devise some other way, and when you have found one that will work, give us your plans so that we can instruct other growers like you.

Comb Foundation

A Limited quantity for quick sale, while it lasts. Section, per lb., 60c. Light brood for shallow frames, 55c. Will accept wax in exchange.

A. E. HOSHAL, Beamsville, Ont.

NORTHERN BRED ITALIAN QUEENS

Friends, have you E. F. Brood? If so, I have many letters saying that they are great resisters of E.F.B. I have hundreds of queens in Canada. Three band strain bred to right brightness to resist best. Unt. $1.00, choice Sel. Tested $1.50. Plans how to "Introduce Queen and Increase," 25c. List Free. **E. E. MOTT, Glenwood, Mich.**

BEES FOR SALE

Italian Bees, lb., $2.25; 5 lbs., $10.50; 1-L Frame, $2.00; 2 Fr. Nuc., $3.00; All with Queens. Italian Queens, 75c each; 6 for $4.00. Complete Catalogue Free. Listing Beginner's Outfit.

THE DEROY TAYLOR CO.
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FINE QUEENS AND BEES

We have made arrangements with two of the best beekeepers in the south to furnish our northern trade with early bees and queens at a very low price. Bees $1.50 lb., 2 frame nuclei with untested queen $2.60. Bees shipped direct from the southern yards.

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QUEENS

REARED IN CANADA

From the BEST Italian Stock

$1.00 Each;
Six for $5.00

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Bees by the Pound, Nuclei or Colonies

We are still booking orders. Northern or southern bred, and bred for business. Hard to excel.

Let us quote you prices on large or small quantities. Our prices are right. We guarantee safe delivery or money refunded.

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FOR
Italian Bees and Queens

Swarms in packages, 1 lb. bees $1.50, 2 lbs. bees $2.50; 50 or more packages 12½c. less each. If queens are wanted with the above add price of her to the above. Three band Italian untested queens 75c each; tested $1.25 each. No reduction for quantity of queens on April and May deliveries. No disease. Safe arrival and pure mating I guarantee. We can supply and satisfy you. We spare no labor nor money to produce the best for you is why we cannot make a lower price. We have long since passed the experimental stage in this business. We will care for your interest.

W. D. ACHORD

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"Queen Breeder and Pioneer Successful shipper of bees in packages."

To Canadian Beekeepers

WE are making a specialty of shipping bees and queens into CANADA this season. Situated, as we are, only a short distance from the Canadian line, we practically eliminate the loss by shipping and save to the purchaser the high express rate he is compelled to pay to southern beekeepers.

We are breeding from bees and queens that produced a surplus of 300 pounds per colony in a 24-day honey flow, and that are unexcelled for prolificness, gentleness and honey gathering.

Last season we did a very nice business with Canadian beekeepers. Several of them have ordered from us again this season, reporting to us that they were well pleased and that in their opinion our stock was the best on the market. **WE HAVE PLEASED AND SATISFIED OTHERS, AND WE CAN SURELY SATISFY AND PLEASE YOU.** We fill all orders promptly or at such time as the purchaser may desire, and guarantee safe delivery on all shipments into Canada and entire satisfaction to you in every respect. Our aim is to give the purchaser the best stock on the market at the time he wants it. We ask you to give us a trial and let us prove to you that everything we claim for our bees is true.

Island Bred Italian Queens.

	1	6	12
Untested	$1.50	$7.50	$12.00
Tested	2.00	10.50	18.00
Sel. Tested	3.00	15.00	24.00
Tested Breeding Queens, each.	$5.00 and		$10.00

Prices on bees by the pound, F.O.B. Canton, Shipment begins May 10.

	1	6	12
½ lb.	$1.50	$7.50	$12.00
1 lb.	2.00	10.50	18.00
2 lbs.	3.00	15.00	27.50
3 lbs.	4.00	21.00	36.00
5 lbs.	5.50	27.50	50.00

(These prices are Without Queens.)

Prices on Nucleus and Full Colonies, without queens. Shipping now.

1 Frame Nucleus	$2.00	2 Frame Nuclei	$3.00	3 Frame Nuclei	$4.00
5 Frame Nuclei	5.00	8 Frame Colony	8.50	10 Frame Colony	10.00

The J. E. Marchant Bee & Honey Co.
CANTON, OHIO

QUEENS OF QUALITY
The genuine "QUALITY" kind of dark Italians. Unt., 75c each, $8.00 per doz. Circular free.
J. I. BANKS, DOWELLTOWN, TENN.

Italian Queens
Three-Banded

Ready April 1, of an exceptionally vigorous and long-lived strain of bees. They are gentle, prolific, and the best of honey gatherers. Untested, $1.00; 3, $2.75; 6, $5.00; 12, $9.00. Tested, $1.25; 6, $6.50; 12, $12.50. Send for my free circular and price list, and see the natural conditions under which my queens are raised. Will book orders now.

JOHN G. MILLER, Corpus Christi, Texas.
Corner C St., and Coleman Ave.

FOR SALE
Leather Colored Italian Queens

A few choice breeding queens at $10.00 each, spring delivery. I guarantee these queens to be as good as any imported queen, barring none. If purchaser is not satisfied after one year's trial return queen and I will refund the $10.00.

Warranted purely mated queens $1.00 each or $10.00 dozen. Untested, after July 1st, 75c each or $9.00 a doz.

A few choice cols, of Italian bees in 9 frame hives at $10.00 per col.

Tested Queens $1.50 each.

JOHN A. McKINNON
St. Eugene - - Ontario

Three Banded and Golden Italian Queens

Untested—$1.00 each; 6 for $5.00; 12 for $9.00.

Selected untested—1 for $1.25; 6 for $7.00; 12 for $14.00.

W. R. STIRLING
Queen Breeder. RIDGETOWN, ONT.
Send for Price List. Cash with Order.

BEEKEEPERS!

Jones' Weed Process Comb Foundation, Wax worked into Foundation, Italian Bees in Pound Packages, Improved Model Hives, and a full line of Bee Supplies. Catalogue free.

Write us if you have any BEESWAX to offer.

F. W. JONES
BEDFORD, QUE.

The Apple Situation at the Coast*

R. C. Abbott, Coast Market Commissioner, Victoria, B.C.

A statement in regard to the appie situation in the city of Vancouver last season may be of interest. The market was in favor of the British Columbia grown product.

British Columbia grown apples of 1914 were on sale in Vancouver up to May 1st. The varieties consisted of Yellow Newtowns, Spitzenburg, Ben Davis, Hall's Jennettes, Red Cheek, Pippins, Grimes' Golden, Baldwin and Spys. Most of these varieties showed waste. The Baldwins from the Okanagan Valley held up well.

From the time the early apples first arrived on the market till the end of the year our supply was equal to the demand, as far as quantity was concerned, yet at times somewhat short on certain sizes and grades. The early apple market was supplied almost entirely with British Columbia apples, there having been only a few boxes of inferior qualty brought in from Wenachee.

During the latter part of September and the early part of October the demand favored the No. 1 grade, but on account of the high prices it suddenly changed to the No. 3 grade and crated stock, and held strongly to this class of apple right up to the first week in December, when it suddeniy changed again to the better grades.

The pack and grade of British Columbia apples last season was well up to standard, which will work to the benefit of our growers in the future. Notwithstanding this there are a few facts we feel we must comment upon. Wholesalers complain that in buying a car of apples they do not know what they are going to get as to sizes, etc. This is a very important fact, and shipping organizations would do well to furnish their brokers with a (detailed) manifest showing the number of boxes of each size contained in the car and any other information necessary. Large sizes of dessert appies are poor sellers on these markets, yet jobbers

*Extract from a paper read at the recent annual convention of the Ontario Fruit Growers' Association.

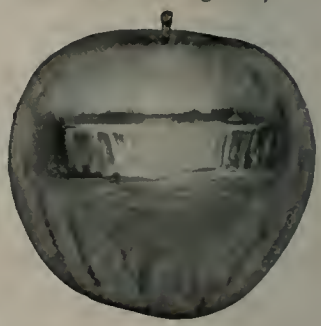
Before the Calyx Closes

Just as the blossoms fall, a day may mean many barrels of apples destroyed by codling moth. The moth requires poison.

SWIFT'S BRAND ARSENATE OF LEAD IS THE BEST.

Control your apple scab at the same time. That needs a fungicide, and the most efficient is

SOLUBLE SULPHUR



Mix Arsenate of Lead and Soluble Sulphur for the second and third spray. A drum of Soluble Sulphur makes 4,000 gallons of Summer Spray. A barrel of Lime Sulphur Solution only makes 1,600 gallons. With Soluble Sulphur there is no loss from leakage, no empty barrels to return—less freight—less muss—no clogged nozzles. Be ready for the falling blossoms. Send to-day for prices on Sprays and Sprayers.

The Niagara Brand Spray Co.
BURLINGTON, ONT.
Everything for Spraying—Soluble Sulphur, Lime Sulphur, Arsenate of Lead, Dust Sprays and Dusters, Hand and Power Pumps, and Accessories.

Practical Gardening Tools

TOOLS like these will do all of the necessary work (except plowing and harrowing) economically, whether for home, farm or market gardens. You can plant certain crops close and straight, and work them close and safely, with wheel hoes. You save ground, save heavy investment for tools at the start and yet do the best kind of work with profitable results.

IRON AGE Hand Seed Drills and Wheel Hoes

Will sow, cultivate, ridge, furrow, etc. better than you can with any old fashioned tools and ten times quicker. Pushed ahead a step at a time, these tools can be worked by women, or grown boys or girls. We show here a few only but we make 38 styles and combinations from which to choose. Prices, $3.00 to $14.50. There are also many attachments for special work.

Ask your dealer to show them and write us for booklet "Gardening With Modern Tools." Also, for horse hoes, harrows and cultivators, sprayers, etc.

The Bateman-Wilkinson Co., L't'd 462 Symington Ave. Toronto, Ontario.

can always handle a certain proportion in each car.

A very important matter is the establishment of a standard for the No. 3 grade by selling organizations themselves. The wide scope used in putting up this grade certainly works against the growers and is confusing to the consumer. For one organization ships in "Orchard run" stock graded No. 3, and another takes out the No. 1's and No. 2's and ships in the balance as No. 3 grade, while still another shipper will send in, under No. 3 grade, that which is no better than hog feed, yet all these to the consumer and also to the trade are simply "Grade No. 3."

A noticeable feature of our apples last season was their poor keeping quality, caused by the abnormal climatic conditions last season, which caused nearly all kinds of fruit to mature at least twelve days sooner than other years.

Viewing the apple situation right through the season we believe it was the most satisfactory year that our growers have ever experienced on this market, both as to price and the quantity sold. Further, I believe had our people been able to supply the grades and varieties requested at times by the commission houses the imported apples could have been entirely cut out.

The demand for British Columbia apples is proved by the fact that a car of fancy apples from Cashmere, Washington, brought in early in September and distributed along wholesale row was not cleaned up till late in November. The price of American apples declining in November, the Vancouver jobbers, anticipating a rapid rise in prices after the first of the year, placed the greater portion of imported apples brought in during November and December in storage to be brought out after the British Columbia

Keith's Seeds Are Superior

To demonstrate their superiority we will send the following six packets of seeds, together with our

GOLDEN JUBILEE CATALOGUE,

Post free for 20c.

Keith's Selected White Tip Radish.
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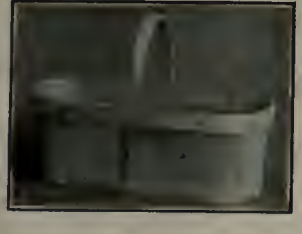
Peerless Climax Fruit Baskets

AND BERRY BOXES



Heaviest, Strongest and Best

In the market. Especially suitable for long distance shipping.

Protect your requirements by ordering EARLY

Canada Wood Products Co.
ST. THOMAS, ONT.

Start a Backyard Garden This Spring

WHY not decide now to have a garden this spring, and prepare your hot beds at once. In another couple of weeks you should have your seeds such as onions, tomatoes, beets, lettuce, cabbage, and of course a number of varieties of flowers for the flower garden all planted.

Hot Bed Sash
3 ft. x 6 ft.
10 inch glass.
Price $1.15
In Clear Red Cypress Unglazed

Hot Bed Sash
8 inch glass
Price $1.20
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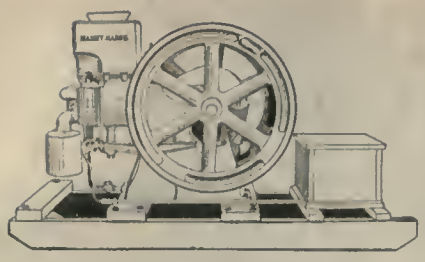
BATTS LIMITED
MANUFACTURERS ALSO OF GREENHOUSE BARS AND SASH
366-415 PACIFIC AVENUE - - WEST TORONTO



A Reliable and Economical Source of Power

A MASSEY-HARRIS ENGINE mounted on Skids can be moved around to any place where you need help in the way of power.

You will be surprised to find the many uses to which it can be put and the small cost as compared with manual labor, not only around the farm but in the dairy and kitchen, where it does so much to lighten the work of the women on the farm.

And perhaps the most interesting part of it is that an Engine costs nothing in "salary" or "keep" when not running.

Our Catalogue "Farm Power" gives many suggestions for Saving Labor.

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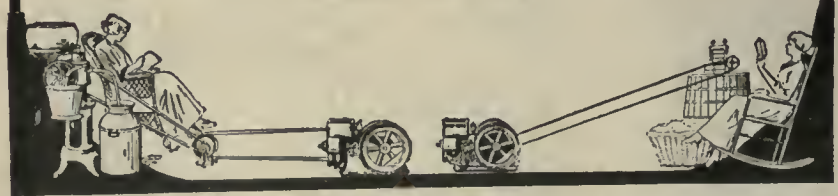

PEERLESS LAWN FENCING

Enhances Property Values

A BEAUTIFUL lawn fence gives any piece of property that symmetrical, pleasing, orderly appearance that not only affords its owner a keen sense of pleasure and satisfaction while occupying the premises, but when offered for sale, it brings a better price. It's an investment—not an expense.

Peerless Ornamental Fencing

is made of strong, stiff, galvanized wire that will not sag. In addition to galvanizing, every strand is given a coating of zinc enamel paint, thus forming the best possible insurance against rust. Peerless Ornamental Fence is made in several styles. It's easy to erect and holds its shape for years.

Send for free catalog. If interested, ask about our farm and poultry fencing. Agents nearly everywhere. Agents wanted in open territory.

The Banwell-Hoxie Wire Fence Co., Ltd.

Winnipeg, Man. Hamilton, Ont.

stock is cleaned up.

The heavy months for imports were January, February, March, October and November. Two interesting facts in regard to the imports are, that out of the total of 118,240 boxes brought in, 66,111 boxes were received during the first three months of the year and 18,170 boxes were on hand at the end of the year.

Recent Publications

Copies of the following publications have reached The Canadian Horticulturist during the past few weeks: "Varieties of Apples in Ohio," being Bulletin 290, issued by the Ohio Agricultural Experiment Station, Wooster, Ohio; Bulletin 244, from the Maine Agricultural Experiment Station, Orono, Maine, on "Blueberry Insects in Maine"; Bulletin No. 43, entitled "The Principal Parasites of the Peach." This bulletin deals also with the care and management of peach orchards. It is being issued by the Georgia State Board of Entomology, Atlanta, Ga. "Insects Attacking Cabbage and Allied Crops in Connecticut" is the title of Bulletin 190 from the Agricultural Experiment Station, New Haven, Conn. "Common Diseases of Beans" are dealt with in Circular 50 of the New Jersey Agricultural Experiment Station, New Brunswick, N.J.

The University of Illinois Agricultural Experiment Station, Urbana, Ill., is distributing Bulletin 185, entitled "Field Experiments in Spraying Apple Orchards." This bulletin contains a number of spray tables for fruit growers. "Fertilizing Lawn and Garden Soils" is the title of Circular 24, issued by the Iowa State College of Agriculture, Ames, Iowa.

FOR SALE

Black Raspberry plants, Cumberland and Corinth varieties, good strong plants. Order early, as stock is limited.

P. P. Carruthers, Manager F. P. Macklem Farm, Lake Road, Grimsby. Phone 137

NEW AND RARE SEEDS

Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalogue free.

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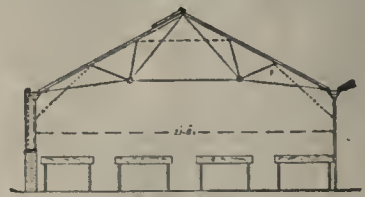
SANDER & SONS
ST. ALBANS, ENGLAND

ORCHID GROWERS. The Finest Stock in the World

Catalogue on Application



STYLE C

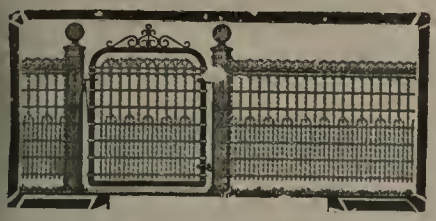
This is a New Model for 1915, the result of fifteen years' experience in Greenhouse construction for Canada.

Dotted lines show location of wind-ties that positively prevents vibration of the sash.

Supplied in widths up to 25 feet 2¼ inches from post to post.

KING CONSTRUCTION CO.,
40 Dovercourt Road - Toronto.

Make the Back Yard a Garden This Year



Why Fight Against Nature?

BOARD FENCES STIFLE GROWTH

Get Dyer's Lawn Fence

Let in the sunshine, pure air, and make nature smile.

Get his special prices now.

Dyer, the Fence Man

47D E. Wellington St., TORONTO, ONT.

The BEST Seeds

Make the BEST Garden

Be sure to get Steele Briggs' quality flower and vegetable seeds, bulbs, perennial plants, shrubs, and roses. All the newest varieties.

Our Catalogue tells about them.

Steele Briggs Seed Co.

LIMITED

TORONTO, ONTARIO

Every citizen can render service in the production of foodstuffs. Even in the heart of populous cities something can frequently be done. Cellars and roofs have been utilized for this purpose in New York. Every ounce of needed produce grown is so much added to the wealth of the country. If some part of the energy of every householder in Canada were bent upon producing something eatable, no matter how small, thousands of tons of valuable produce would be forthcoming, all of which, whether consumed in the household or not, would help to make available for use in other ways an equal quantity, and would aid in modifying the cost of living. Last year considerable progress was made in the appropriation of seemingly waste land in towns and cities to useful purposes. Considerable success was achieved, and this year it is not to be doubted the experiment will be extended with greater results. In fact, in many centres plans made last fall or during the winter are already being carried out.

Germany has laid down utilization of the land as one of her first principles. Every inch of land, according to the Teutonic proclamation, that is not used is so much of the country's resources wasted. France has adopted a regulation to the effect that every bit of space must be used for production: failing this being done by the owner the state is to take possession. Britain has given orders that golf courses and all meadow land are to be used for grazing purposes, and that previous pastures are to be put down in crops. Private parks are also being wooded out and the land devoted to practical agriculture. A campaign is being conducted, having for its object the utilization of backyard gardens and all manner of vacant land. Thus the chief belligerents are setting the world an example in production and thrift that Canada would be wise to profit by as widely as possible, and that municipalities and public bodies should do their utmost to encourage.

Scores of reports of the operations carried on in the season of 1915 by small householders speak of produce being grown worth from twenty-five to fifty dollars, every dollar of which meant so much added to the wealth of the country as well as saved in the cost of living. Financial profit is not the only gain forthcoming. Lessons of industry and thrift are inculcated and the whole household, from the oldest to the youngest, come under the influence of those qualities. They also have the gratification of eating fresh vegetables, the enjoyment of which is tremendously enhanced by the proud knowledge that they are home grown. What the families cannot eat themselves they have the pleasure of giving or selling to their neighbors, or sending to some charity. It is hard to imagine any greater or more enduring satisfaction than a household in modest circumstances can experience than that to be derived as the reward of loving industry in a backyard garden.

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We are headquarters for

Vegetable Seeds,
Flower Seeds,
Lawn Grass,
Roses,
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Garden Sundries.

Catalogue Free.

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BULBS, SEEDS, PLANTS

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Rennie's Garden Seed Book

For 47 years the leading authority on **Vegetable, Flower and Farm Seeds, Plants and Bulbs.**

You need it. Send for free copy to-day.

It describes more than 1,500 of the best varieties of

Vegetables, Flowers, Shrubs, Vines, Fruits,

and hardy plants suitable for all parts of Canada.

Scores of varieties of

Asters, Pansies, Petunias, Phlox, Sweet Peas, Climbing and Dwarf Roses, Dahlias, Gladiolus, Paeonies, and Phlox Plants, Etc., for beautifying the home grounds.

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BEZZO'S FAMOUS PRIZE ASTERS

Prizes New York State Fair, Canadian National Exhibition, Berlin Horticultural Society and many other places.

All colors, early and late varieties, $1.00 per hundred by express, $1.15 per hundred by mail. Charges prepaid on over 300.

C. MORTIMER BEZZO, - - - - - - - - BERLIN, ONT.

Reducing Waste in the Orchard

Instead of letting apples rot and waste or disposing of them as culls and "seconds," why not give your trees and bushes a little systematic spraying and so get "first grade" prices for your fruit. All the foremost fruit authorities agree that the

Spramotor

It isn't a SPRAMOTOR unless we made it

by reason of its improved construction, does the work of spraying as no other machine can. The Spramotor won first prize in the Canadian Government Spraying contest at Grimsby, Ontario against eleven other makes. By actual Government tests in 19 orchards it reduced the percentage of loss in fruit over 80 per cent. Used on potatoes a Spramotor has increased a yield of almost nothing to 400 bushels an acre. Think how quickly such a saving or even a small fraction of such a saving would pay for your Spramotor. The Spramotor is operated by hand, horse or gasoline engine; it can be had for as low as $6 up to $400. Send for and read our valuable and interesting book on crop diseases —mailed free.

MADE IN CANADA. NO DUTY TO PAY.

SPRAMOTOR WORKS, 2712 KING STREET, LONDON, CANADA

Flowering Bulbs

GLADIOLUS

These are most effective in the flower garden, the colors are magnificent and they are easily grown. Prices are here—we offer:

Choice Mixed—10 for 30c, 25 for 65c, $2.00 for 100.

Groff's Hybrid Seedling Mixed—10 for 40c, 25 for 75c, $2.50 for 100.

Bruce's White and Light Shades—10 for 50c, 25 for $1.00, $3.50 for 100.

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Bruce's Superb Mixed—Made up by ourselves from all varieties—the best, 10 for 60c, 25 for $1.35, $5.00 for 100.

Named Varieties—Any color (see catalogue), 7c to 25c each.

If to be mailed add Postage at rate of 10c for 10, 20c for 25, and 50c for 100.

DAHLIAS

Splendid Named Sorts—All colors—20c each, 3 for 55c, $2.00 for 1 dozen.

Ordinary Varieties—Mixed 10c each, 3 for 30c, $1.00 for 1 dozen.

If to be mailed add Postage at rate of 5c each, 50c dozen. Where there are Express Offices, Express is cheaper than Mail for lots of over 6 Dahlias or over 50 Gladiolus.

FREE Our handsomely illustrated 128-page catalogue of Vegetable, Flower and Farm Seeds, Bulbs, Plants, Poultry Supplies, Garden Implements, etc. Write for it.

JOHN A. BRUCE & CO., Limited

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More Potato Profits

MACHINERY may make all the difference between profit and no profit in growing potatoes. Get the right ones. We make complete lines of planting, weeding, cultivating, spraying, ridging and digging tools, all of which we guarantee. 80 years of factory and farm experience back of them. We'd like to tell you about all

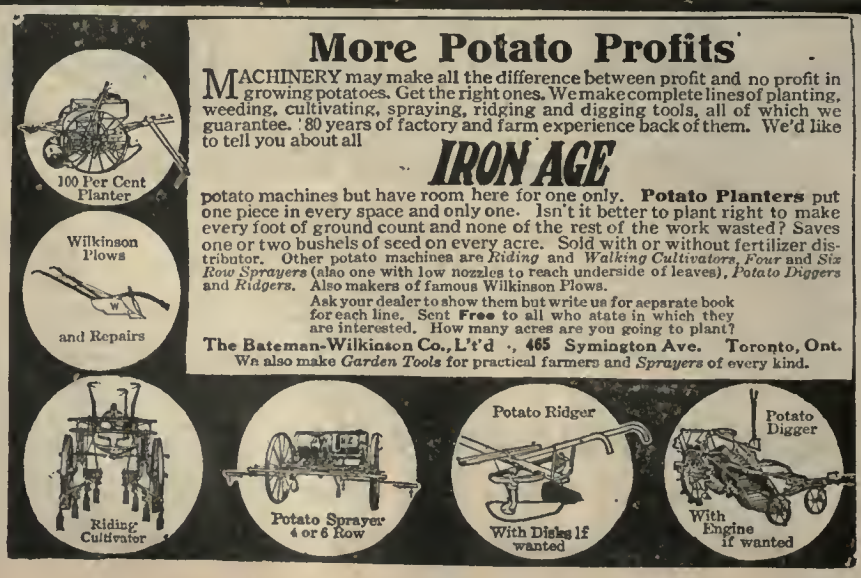
IRON AGE

potato machines but have room here for one only. **Potato Planters** put one piece in every space and only one. Isn't it better to plant right to make every foot of ground count and none of the rest of the work wasted? Saves one or two bushels of seed on every acre. Sold with or without fertilizer distributor. Other potato machines are *Riding* and *Walking Cultivators, Four* and *Six Row Sprayers* (also one with low nozzles to reach underside of leaves), *Potato Diggers* and *Ridgers.* Also makers of famous Wilkinson Plows.

Ask your dealer to show them but write us for separate book for each line. Sent **Free** to all who state in which they are interested. How many acres are you going to plant?

The Bateman-Wilkinson Co., L't'd, 465 Symington Ave. Toronto, Ont.

We also make *Garden Tools* for practical farmers and *Sprayers* of every kind.



Niagara District Notes

By F. G. H. Pattison, Winona

Spring in this district has opened nicely Fruit trees, vines, and berry bushes hav come through the winter well and giv promise of a good crop. The land has se tled, and some spraying has been don chiefly of peach trees. A great deal o commercial lime-sulphur is being used although some of the large growers ar using the old home-boiled. Soluble sulphu is also being used.

From accounts in some sections the San Jose Scale is pretty bad this spring. In th neighborhood of Hamilton it is very bad i some parts, having attacked the ornamenta shrubs and trees in many of the privat grounds. A number of people seem to b still ignorant that the scale attacks quite number of ornamental shrubs and som shade trees, notably the mountain ash. I also attacks some kinds of roses. Th spread of the scale in the grounds and door yards of the cities and towns in Southern Ontario is a serious matter, and one whic demands prompt action on the part of city and town councils.

Towards the end of March a meeting o the directors of the Niagara Peninsula Fruit Growers' Association was held at St Catharines, at which it was decided to ad vertise heavily during the present season the work to be placed in the hands of a com mittee called the Niagara Peninsula Publi city Association. The following persons were elected directors of the committee: J. B. Fairbairn, Beamsville, chairman; C. E. Fisher, secretary; Wm. Stewart, F A. J. Sheppard, W. Gayman, and F. M Clement.

It was decided that the campaign this season will be more intensive than last, and a system will be adopted whereby the actual contributors to the advertising fund will receive the chief benefits.

Spraying and grape tying are going to cost fruit growers more than usual this season. To give only two items: Grape twine, which sold last spring for 10 cents a pound, has increased to 25 cents; and bluestone, which sold at 15 cents, has increased to 30 cents per lb.

The outlook for better selling prices for the tender fruits is better than for the past two years. Money is plentiful with the classes of people in the cities who buy largely of fruit when they have the money, and with an active and well-conducted advertising campaign for Niagara district fruit, the volume of sales should be larger and better prices should be obtained. One mistake made last season was starting the prices of several kinds of tender fruits too low, and it is to be hoped that this mistake will not be repeated again this season.

There are several reasons why good wine has almost never been made in this country. To begin with, it is a question whether we have the right kind of grapes. Next, it requires great care and knowledge to be exercised at each stage of the making. Finally, it must be kept from 10 to 20 years in casks of a particular kind of wood, at an exactly even temperature, which should not vary more than five degrees. All this before it is bottled and put upon the market.

This involves a large amount of capital, a long waiting for any returns, and a class of expert help not to be had in this country. Moreover, owing to the tendency of the people here towards prohibition, no one in their senses would invest money in a plant capable of turning out a first-class article of light wine. Grape growers here will have to look to unfermented grape juice production, and not to light wines, for an extension of their industry.

Grape juice, although very insipid to any-

Dahlias, Gladiolus and Perennial Phlox

15 choice Dahlias, all different, postpaid $1.15
50 choice large flowering Gladiolus, postpaid 1.15
12 Perennial Phlox, new, large flowering, postpaid 1.15
5 Dahlias, 12 choice Gladiolus, 5 Per. Phlox, postpaid 1.15
Sask., Maritime Provinces, Alberta and British Columbia, postage 5c. extra.

GEO. E. EGERTON,
112 Chalmers St., - - Galt, Ont.

The Satisfaction and Profits of Gardening

are just in proportion to the quality of the seeds you plant! If you are ambitious to produce prize-winning vegetables and record crops—or if you simply aim to keep your table supplied with the best—be sure to get

Ewing's
Reliable Seeds

Forty-five years of success in amateur and market gardens have proved Ewing's to be sure in germination, vigorous in growth, true to name, and of choicest strains.

Our new 1916 Catalogue, with its handsome 4-color cover, is bigger and finer than ever. Write for a copy at once, (it's free) and if your dealer hasn't Ewing's Seeds, order from us direct.

The William Ewing Co. Limited
SEED MERCHANTS 48
McGill Street - - Montreal

The Handiest Spraying Outfit

NOTHING else on the market meets the needs of the farmer or gardener so completely. It is constructed entirely of metal, ensuring long service. All parts of the pump in contact with the liquid are made of brass. The

OK CANADIAN
ONE-MAN SPRAYER—Wheelbarrow Type

is certainly a gem of an outfit. For spraying field crops, the pump is worked automatically by the wheel and will thoroughly coat two rows on each trip. The nozzles are adjustable for wide or narrow rows and high or low vines. It has a 10-gallon tank, and will handle any liquid spraying mixture. This outfit can be instantly adjusted for spraying trees, shrubbery, hedges, etc., by hand pumping. It can also be used for window washing, buggy washing, white-washing and fire protection. You will certainly appreciate the value of this compact little machine. Write for literature, information on spraying mixtures, etc. Mail the coupon to-day. 45-B

Canadian Potato Machinery Co., Ltd.,
498 Stone Rd., Galt.
Please send me full particulars of your one-man sprayer.
Name .....
Address .....

Strawberry Plants that Grow

Selected plants. All standard varieties $3.50 to $6.00 per 1,000. Send for list.

Ontario Nursery Co.

WELLINGTON. ONTARIO.

LAST CALL

You want strawberries this year. This is the last call—send for our booklet to-day. Grow the best—it tells how.

JAS. E. JOHNSON & BROS.
Simcoe, Ontario

Big Ben

Just As a *Clock*

If he didn't have an *alarm* in his make-up he'd be the best three dollar *clock* that ever kept track of the day on any farm.

As it *is*, he's *two good clocks in one*—a reliable alarm to get up by, a punctual timekeeper to serve in parlor, dining room, or kitchen. He goes quietly about his work—you hear him only when he calls.

Handle him with reasonable care, — he'll last for years.

7 inches tall. Price $3.00 at your dealer's. If your dealer hasn't him, send a money order to his makers and he'll come direct by parcel post, all charges prepaid.

Western Clock Co.

La Salle, Ill., U.S.A. Makers of *Westclox*

one accustomed to drink good wine, is a pleasant enough summer drink, and seems to suit the public taste in large sections of the United States, while it is making considerable strides in public favor here. It can be much more easily made than wine, and can be put on the market at once without any "watchful waiting."

A report from Grimsby says: "The orchards have come through the winter in excellent condition, and prospects are good for a fine showing of buds. Very few new orchards will be seen in the district, orders for nursery stock this spring being mainly for filling in or extending."

The acreage of tomatoes will probably get back to the old average again, on account of the cleaning out of the stocks in the factory warehouses. The majority of the canning factories have made contracts for tomatoes in this section.

Reports from Lambton county indicate the promise of a good crop of fruit there. Peaches have wintered well and have a fine show of buds. Rabbits and mice, however, have done injury to young trees. The apple crop in Lambton county is expected to be large this year, and arrangements are being made for the manufacture of barrels, so as to have them stored ready before the busy season arrives.

There is a boom on in co-operation there. Lambton county has a Beekeepers' Association, a Fruit and Vegetable Growers' Association, composed of 13 local associations, and holding an exhibition every year; and a Lambton County Co-operative Association, representing nearly 50 Farmers' Clubs throughout the county.

Prof. Caesar, of the O.A.C., Guelph, has been at Vineland recently on a trip of inspection. The San Jose Scale is stated to be more prevalent there than ever this season. Spraying commenced in that locality some days ago. William Betler is acting as inspector, overseeing the fumigation of nursery stock before shipment at Vineland.

The Poultry Yard

F. C. Elford, Experimental Farm, Ottawa

All brooders should provide a varied temperature. Underneath the hover should

RENNIES SEEDS

EVERYTHING NEW
FRESH—PURE
RELIABLE

Ask your dealer or write
RENNIE'S — TORONTO

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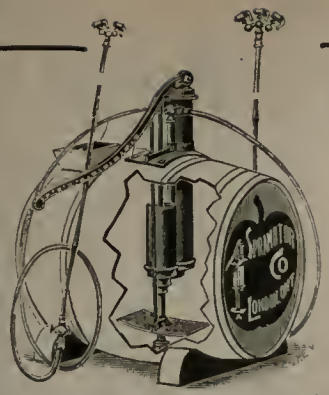

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Include bucket, barrel, power and potato sprayers in many sizes and variety of equipment to suit each man's needs. We want to show you what each one is, how they are made and what they will do. Ask your dealer to show you these tools and write us for booklet describing all of them fully. We also have a spraying guide which we are glad to send.

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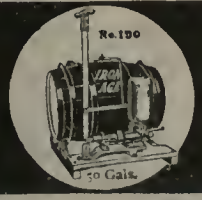

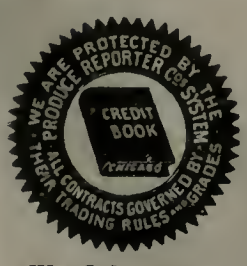

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References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies

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YOU WANT "Reliable Seeds," get our Seed Price List and Save Money. Morgan's Supply House, London.

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PLANTS FOR SALE—Ornamental shrubs, hedging and perennials. Strong, thrifty plants at moderate prices. Prompt shipment. W. O. Burgess, Niagara-on-the-Lake, Ont.

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BEES.

CARNIOLAN, GOLDEN AND THREE BANDED ITALIANS. Bees by the pound, Nuclei. Ready to go April 1st. Write for price list. C. B. Bankston, Buffalo, Leon Co., Texas.

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LET US send you price list and descriptive circular of our bees and queens, and if you will tell us what size and how many packages you may want we will tell what the Express will amount to. R. V. & M. C. Stearns, Brady, Texas.

WANTED—Honey Extractor, four frames. State condition, make and price. W. W. Nancekiveli, Ingersoll, Ont.

GOLDEN and leather colored Italians, 32 years' experience as honey producer and queen breeder. Prices—Select untested 1 queen $1.00; 6, $4.00; 12, $7.25. Tested—1, $1.50; 12, $15.00. Make P.O. Orders payable to Fertilla. Money returned for any queens not satisfactory. B. J. Cole, Fertilla, Riverside Co., Calif.

GRAY CAUCASIANS—Early breeders, great honey-gatherers; cap beautifully white; great comb-builders; very prolific; gentle; hardy; good winterers. Untested, $1; select untested, $1.25; tested, $1.50; select tested, $2.00. H. W. Fulmer, Box 12, Andalusia, Pa.

BEES and QUEENS from my New Jersey Apiary. Price list free. J. H. M. Cook, 70 Cortland St., New York City.

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BEE SUPPLIES.

BEEKEEPERS—Please write for our Catalog. Morgan's Supply House, London.

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A DAUGHTER of one of Dr. Miller's best honey queens, and the Beekeeper's Review for 1916 for only $2.00. A daughter of one of the very best honey-getting queens selected from 1,100 colonies worked for extracted honey, from the yards of E. D. Townsend & Sons, and the Review for 1916 for only $1.75. The queens will be mailed in June direct from our breeders in the South. A rare buy. Beekeepers' Review, North Star, Mich., U.S.A.

Deep Seedbeds Properly Prepared

—That's what you get when you use the deep-cutting, double-turning, leveling and compacting

"Acme" Pulverizing Harrow

"The coulters do the work"—you should see them mix the soil, cut clods, weeds and trash and make the whole into a firm yet mellow seedbed several inches deep. The "Acme" is simple, durable and easy to pull. Sizes 3 ft. to 17 1-2 ft. wide. Thousands in use. Send for booklet *now.*

No 23. 6½ ft. wide

The Bateman-Wilkinson Co. Limited

07 Symington Avenue Toronto, Ont.

be warm. Another compartment should be provided where the temperature is a little lower, and the colony house or the brooder house floor should have even a still lower temperature. This gives a chance for the chicks to accommodate themselves to the temperature they wish.

Moderate Heat Required.

It is not necessary to have the cold compartment of the brooder very warm. When chicks are well supplied with heat underneath the hover, they can do with a fairly cold temperature in the run. In fact, strong, hardy chicks a week old will thrive even if allowed on frozen ground for a little while during the day.

Constant care is essential in that the chicks are not allowed to forget where the heat is. On this account the extension of the yard should be gradual.

The brooder should be set level. This insures an even distribution of heat beneath the hover.

It is best to have the runway from the hover compartment on a level with the floor of the house. There is then not so much danger of the chicks being unable to get back to the heat before chilling.

Chicks require a variety of food the same as anything else. That is, a change now and again is appreciated by them.

Fine grit should be fed the chicks right from the start. When the chicks are two weeks old, they can be given grit the size of a grain of wheat.

Finely cracked grains are the best to feed for the first few days, but it is astonishing how quickly chicks can take whole wheat.

An occasional feed of scalded milk or boiled rice will help bowel trouble. Be sure to watch the young chicks for head lice. If they are not doing well, and you cannot locate the trouble, look for head lice.

Milk at all times makes good feed for chicks. If it is supplied, other animal foods are not so essential.

Provide Animal Food.

Animal food of some kind will have to be supplied; if it is not in the shape of milk, it can be given in table scraps or beef scraps. Ground green bone is also good if fed in limited quantities, and if it is not decomposed.

If chicks get weak on their legs, it is a sign that either the feed or the conditions are wrong. Change both. Give more bone-forming food, more green food and more exercise. Get the chicks off the hard floor. Give them fresh soil or green grass to run on.

If chicks crowd in the brooder, it is a sign that there is too little heat. Give more of it at once.

Strawberry Plants

The cream of the strawberry world. Only a few thousand each of the following choice varieties to offer. Order early.

"Pride of Michigan" B, "Chesapeake" B, "Donan" B, "Fendall" P, "Kellogg's Prize" P. Price 75c per hundred, $5.00 per thousand

Those marked P are Pistilates and should always be planted with Bisexual varieties marked B.

Large stock of vegetable and bedding plants at lowest prices. Tomato, celery, cabbage, cauliflower, geraniums, petunias, coleus, cannas, verbenas, salvia, asters, pansies, stocks, etc. Write for prices and varieties.

The Mitchell Nursery and Floral Company

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The Canadian Horticulturist

Floral Edition

Vol. XXXIX PETERBORO, JUNE, 1916 No. 6

Some Phases of Packing and Marketing Basket Fruit*

By P. J. Carey, of the Dominion Fruit Division, Toronto

WITH the fruit grower and fruit handler there is always something new. Each year brings its lessons and calls for some new lines of action on the part of the growers in order to combat what seems to be an ever-increasing trouble along the different lines of fruit handling. It would seem, then, as necessary to preach the gospel of good practice from time to time to the grower as it is to hear the Sunday sermon. It was easy in the old days for the lecturer to impress his audience. There were scores of theories advanced fresh and untried, many of which have since been exploded. Speakers in addressing meetings in those days had a habit of saying pleasing things to the growers in the different sections, and the meetings used to turn into a sort of a mutual admiration society.

A different audience faces the speaker now-a-days. He feels that every word he utters is under fire, and may receive sharp criticism. The time has arrived now for plain talk, and I intend to say plain things.

*Extract from an address delivered in the Niagara Peninsula.

The subject I am discussing is a large one, and I will touch only what strikes me as the most important points. First, I intend to deal with inspection work for a short time. While not a fruit inspector, my duties are still not far removed from that work, and I take a hand in it when necessary.

Most growers may think that we should have made greater headway along the line of better packing of fruit. There were between twenty and thirty prosecutions on basket fruit last season mostly in the Niagara peninsula. This, of course, was in the overfacing of baskets, and I may say, that many of the cases were very pronounced.

Every grower is vitally interested in this matter of faulty packing. It has the most damaging effect on the trade. The consumer who has purchased a fraudulently packed package of fruit is never very ready to believe that there is such a thing as an honest fruit-grower, and is loud in proclaiming the misdemeanor to the whole community. In some cases he will overdraw the picture.

Now, as all the cases of violation in small fruit are in over-facing, and, of course, in having a fraudulent complexion, it has a much more damaging effect than in the matter of apples in barrels and boxes. As in the latter, it is largely a question of grading which often may be met by the packer setting up that it was accidental or owing to a lack of judgment as to what constitutes the grade called for.

In the case of apples when below grade fruit may still be useful, while in the case of small fruits, where they are largely used from the hand, when a package contains a large percentage of trash it is rendered almost useless. In the case of small fruits the violation is much more readily detected and consequently more damaging to the trade.

As regards the relative degrees of gravity of the two characters of violations "below grade" and "over facing." The first named might be accidental or due to a lack of knowledge. It leaves a hope that the accused may still be honest, but when we find inferior to useless fruit systematically placed in a basket with a layer of beautiful specimens on top, it is hard to make out a case for the defence.

Now, I would not like to say that all

That this crop of strawberries was a money-maker may be surmised by a glance at it. Grown by W. H. Rodgers, Northumberland county, Ont. Photo courtesy R. M. Kellogg Co.

The orchard of F. H. Johnson, Bridgetown, N.S., in which clean cultivation is practised.

those prosecuted for the over-facing of packages were dishonest, in fact, I believe that some packers who have had bad training will pack a fraudulent package when their employer would not wish it packed in that way, but he would still be responsible for the violation.

Where it is fairly evident that a violation has occurred through a lack of knowledge of the work or of the requirements of the law the inspectors are instructed to set the packer right and give him another chance, but the Dominion Fruit Commissioner has taken strong grounds on all cases of the over-facing of packages, and has given sharp instructions to stamp out this trouble by prosecuting in every case where the evidence will warrant it.

There are three grades of violaters. The first is the slovenly fellow who never does anything right, for whom there is but little hope. The inspectors are slow to act harshly with a fellow of this kind, but there is a limit, and he must pick up the requirements if he wants to remain in the fruit business. In the second grade there are many varieties. There is the "want to be good" sort of a fellow who blames it on the hired man, or, perhaps, on his wife. Some justify a little shady packing by setting up the excuse that the other fellows are out to do you, anyway, and it is better to do them first. From this grade or middle class the inspectors make many good converts when they are shown where their actions lead.

The third grade is the "out-and-outer," who has no love for the inspector or the law, and who, if he has nothing but good fruit to put up, would put it up almost grudgingly.

There are but few of this latter class, and, for that matter, the number in all classes of faulty packers is a small percentage of our growers, and is steadily growing less.

It is surprising what a large percentage of peach growers have not grasped the best method of placing fruit in baskets. We have scores of good basket packers, and we also have many who make a very rough job of it. Some blame the basket, but it would seem that the basket does not cut much figure now that so many are following the practice of using the heaped basket.

The grading of peaches and other basket fruits is a very advanced step in proper packing. It insured honesty of packing by removing the cause. It gives to the man to whom money is no object just what he wants, and he is ready to pay well for it. It gives to the men less fortunate a grade, the price of which is within his reach. It does away with the necessity of putting fruit of different sizes within the same basket, and enables the packer to do better work. The inspector never finds much trouble in graded basket fruit.

Pleasing the Consumer.

If there is one thing more than another with which the growers can be blamed it is their lack of effort to please the consumer. Perhaps less than fifty per cent. of those engaged in fruit growing as a business have any thought for the future standing of their shipments on the market or make any attempt to build up a reputation by making a special effort of pleasing the consumer.

Pleasing the customer after all is a key to the whole situation. It is the impression the consumer has of the last package of fruit used that does the ruling as to whether he wants another package. The difference between a good and a bad impression may mean the difference between success and failure to the grower.

The strength of a chain is shown in its weakest link. In the face of the present situation there should be no broken link if fruit growing is to have any more than a fighting chance as a business.

Much has been said of commission men, transportation companies and faulty marketing, but the strongest link in the chain of marketing fruit is forged at the orchard or packing house when the grower puts up properly matured fruit honestly packed in strong packages, and starts it on its journey under the best conditions possible. The man who instead has no thought but to get the best of the deal by placing attractive fruit on top covering culls below, or the slovenly packer who may be honest enough but packs his fruit in a careless and unattractive manner have in my judgment broken a link in the marketing chain that cannot be repaired.

If a stronger feeling of responsibility, more public spirit and an aim at higher ideals was worked up among the growers it would be productive of much good. Successful growers will tell you that the effort is not a difficult one, and if one were to ask them what was the greatest pleasure they felt in their season's work, the answer would be in the knowledge of the fact that they had pleased the consumer.

Another substantial way to please the consumer is by lengthening the period of the life of the fruit. Too large a percentage of the basket fruit reaches the consumer in a wasted condition, caused by heating in transit. Peaches with discolored spots are not desirable either from the hand or to be used for canning. In many cases fruit otherwise of good quality has to be cut half away before it is fit for use. Some method of pre-cooling or at least of using refrigerator cars would meet the requirement and go a long way in helping the sale of more fruit. Freshly picked fruit put into box cars where the temperature is often eighty to ninety degrees, perhaps to remain in the cars over night, is sure to give poor satisfaction and often is in the first or second stage of decay before it reaches the consumer. It would be argued by some that these precautions mean additional expense, but the sooner the growers wake up to the fact that without the consuming public they would have to shut up shop, the better for the success of their labors. It pays to satisfy the consumer.

Fair to good success has attended the shipping of small fruits to the north-west markets with the exception of peaches and strawberries. I am afraid our peaches are too tender for long distance markets except under special treatment. For export market our peach shipments are likely to remain in the experimental stage for some time. The same can be said of the north-west markets as far as shipping in a general way is concerned.

The key to the situation is distribution. In 1904, when I took up the work on small fruits in Toronto, it was the common practice of commission men to at once restamp thousands of baskets of peaches and reship them to the towns and villages of Ontario. In some cases the fruit was in the first stages of decay. We did not take long to arrive at the conclusion that this was a faulty method of marketing. I have had an opportunity at times to be at the receiving point when this reshipped fruit reached its destination and the consumers were not always anxious to repeat their orders.

I hold no brief for the express companies who are not blameless, but I think that they have received all this condemnation that is coming to them. While travelling from Brockville to Renfrew not long ago I took the trouble to stop off at each station to watch the small shipments being put off at the different stops. In three cases the dealer to whom the fruit was shipped refused to take it off the hands of the express company, and I did not blame them. The baskets were weakly, the covers loose, and in many cases fruit had been pilfered. This can be said of thousands of baskets of small fruit in Ontario.

We have thousands of consumers, including farmers all over Ontario, who are anxious to have some Canadian peaches if they can secure the fruit in fair condition. Straight shipments direct from the orchards to the towns and villages all over Ontario seems to be the only proper method. Surely reliable men can be found to look after the local distribution. In order to put the best methods into practice, cooperation seems to be the only plan. In the fruit business it looks like the survival of the fittest, and in my judgment the cooperative associations are the fittest.

With the increased production and the high priced land that has been taken up by many fruit growers in the peninsula these questions constitute a serious matter for those concerned. Nothing but the closest attention and the employing of the very best methods on the part of the growers will save the day.

Results from the Skinner Irrigation System*

O. J. Robb, Horticultural Experiment Station, Vineland, Ont.

OUR Skinner Irrigation system covers nearly three acres of medium soil, some of which is sandy and some heavy. This system has been operated during two seasons. In 1914 we learned that tomatoes were not benefitted by watering if proper cultivation was given them. We had no small fruit under the system in 1915, but we had two plots of strawberries and one of raspberries each with adjoining check plots.

Results from the season of 1915 show a decided advantage from watering the strawberries, but with the raspberries the unwatered plot gave the larger yield, which amounted to 33%, in spite of the fact that the watered section had larger and better foliage and appeared much stronger every way. One point noticed here was the condition of the plants early in the spring. The plants that had been watered the previous season were killed back and showed much more injury than the unwatered plants. All the raspberry plants were only two years old this past season. Better results are looked for during the coming season. Three varieties were included in this test and two systems of cultivation were practiced.

The results with the strawberries were more satisfying and clearly demonstrated the value of a good supply of water at the right time. Only once during last season did the berries suffer for lack of rain in our section, but at the same time the watered plants came on earlier, bore later, and looked fresher all the time than the unwatered plants.

One plot contained forty-five varieties under test where irrigation gave various results, but with few exceptions all were in favor of irrigation. Only one row of each variety was planted, thus the results from watering are not so reliable as on a larger area.

Our commercial plot consisted of four varieties planted in duplicate, namely, Michael's Early, Steven's Late, Champion, Sample and the Williams. These were planted in rows sixty feet long and made up an area .137 of an acre with an adjoining check plot of similar size.

The yield on the watered plot amounted to 781.5 boxes, whereas the yield on the unwatered plot amounted to only 605 boxes, a gain of 176.5 boxes on the watered plot. This extra yield for one acre amounts to 1,288 boxes. These, if sold at eight cents a box, would bring in $103.04 as revenue from irrigating. Deducting from this the estimated cost of applying the water as figured out by counting a ten hour day as sufficient time to apply one inch of water over one acre this would cost:

$1.20 for gasolene.
.50 for oil.
1.50 for labor.
.46 for depreciation on investment.

This gives $3.60 as cost of applying one inch of water on one acre. But 10.3 inches of water was applied during the season so the actual cost of irrigating this plot of berries per acre was $3.60 x 20.3=$37.08; $103,04—$37.08 =$65.12 as actual profit per acre from irrigation. In a dry season this would be much more favorable.

Other crops showing increased yields were asparagus, celery, carrots and beets. A decided loss was observed with the onions. Practically all the irrigating was done during the months of May, June and July. August was a very wet month and no irrigating was done.

In an ordinary season with good cultivation no extra heavy yields may be looked for from irrigating except in growing a crop like celery or asparagus. The main advantage of the system is its use in a dry section, and in seasons where a fruit crop such as

*A paper read at the last annual convention of the Ontario Fruit Growers' Association.

Thinning Duchess apples in a Northumberland county orchard, bordering Lake Ontario.

An orchard in which beans have been grown as a cover crop. This crop is grown by a considerable number of the growers in Southern Ontario.

strawberries may suffer from a long hot spell. It is needed then and needed badly. It often makes the difference between a good substantial profit and a heavy loss. It is a good investment.

An experiment to test the temperature of the soil at different depths on the watered and unwatered blocks was carried out last season. We found that the watered soil is somewhat lower in temperature at six inch depths, ranging from two to three degrees. It often equalled the unwatered soil temperature during the day, but it always dropped much lower during the night. The temperature at thirty inch depths was warmer on the watered than the unwatered soil. The greatest factors in controlling soil temperatures are heavy rains with low air temperatures and the action of sunshine. Under ordinary conditions irrigation will not lower the soil temperature to any extent.

Spraying at Different Dates*

Prof. W. S. Blair, Kentville, N.S.

IN order to gather information as to the value of the early sprays as compared with the later ones a series of tests in which plots were sprayed twice before, and twice after the blossoms in 1915, were compared with those sprayed once before the blossoms and twice after.

In one series of experiments the one spray before the blossoms was put on about midway between the first spray, which was put on just after the leaf buds were nicely opened May 17th, and the second spray put on just before the first petals opened May 31st, or just before or about the time the blossom clusters were showing pink. This we have called a midway spray.

In the other test the one spray before blossoms was put on just before the petals of the flower clusters opened.

There was a difference of from two to three per cent. only in favor of two sprays before the blossoms. The two most important sprays were the ones just before and just after blossoming. From results obtained it would seem that should the period between the opening of the leaf buds and the opening of the petals of the flower clusters be short owing to weather conditions, one spray may be sufficient to give practically clean fruit, but should this period be extended two sprays should be given.

A study of results from soluble sulphur plots sprayed at different dates indicates that the early spray was quite an important one, and that the two applications before the blossoms were advisable. On the day following the application of the midway spray at Berwick there was a sharp rainfall of about quarter of an inch, as was the case with the spray after blossoming, which showed that soluble sulphur is not an adhesive spray, and that a heavy, quick rainfall may reduce its fungicidal value and bring about increased burning, as was the case with these sprays.

It would seem, therefore, that it is wise to make two applications before blossoms; first after the leaf buds open, and second just before the blossoms open, which dates correspond with those advised for the best control of insects.

* Extract from a paper read at the last annual convention of the Nova Scotia Fruit Growers' Association

Fruit Pests to Fight Now

If you are a cherry grower and have been troubled in previous seasons with white maggots in the cherries, spray just before the blush begins to appear on the Montmorencies, using the following mixture: Two to three pounds arsenate of lead (paste) to forty gallons water, sweetened by the addition of one gallon of cheap molasses. Do not spray the early varieties at this time. In applying the spray, the trees should be given just a moderately thorough application, so that nearly every leaf will be lightly covered.

Pear slug is troublesome on both pears and cherries. The small, blackish, slug-like larvae feed on the upper surface of the leaves, causing the foliage to present a brownish appearance. They can be easily controlled by spraying with two or three pounds of arsenate of lead to forty gallons water, whenever the slugs are numerous enough to warrant it, unless the fruit is beginning to ripen, applying the spray to the upper surface of the leaves. If you have only a few trees, dust them with hellebore or air-slaked lime.

The brown rot of peaches, plums and cherries annually causes great loss to Ontario fruit growers. For peaches, spray with self-boiled lime-sulphur about one month after the fruit has set. If the trees have been well pruned earlier in the year, so as to admit plenty of sunshine and a free circulation of air, the disease is much easier controlled on both plums and cherries, as well as peaches, as it thrives most in a close, humid atmosphere. If rot starts to develop as the fruit of either plums or cherries is ripening, spray with ammoniacal copper carbonate (copper carbonate, five ounces; ammonia, three pints; water, forty-five gallons). Go through the orchard after the fruit is all harvested, pick or knock all diseased fruit from the trees and bury or plough under. These "mummy" fruits if allowed to hang on the trees, serve to carry the disease over till the following season.

Pear blight cannot be controlled by spraying. The only effective remedy is to keep the diseased wood cut out. Throughout the growing season, watch for and remove promptly all blighted twigs or branches as they appear, cutting well below the diseased portion. Disinfect pruning tools and cuts at once with corrosive sublimate, one to one thousand.

Strawberries are about ninety-seven per cent. water, and as this water forms in the berries while they are maturing and ripening, it is essential that the plants be supplied with plenty of moisture during the fruiting season.

Best Packages for Tender Fruit Shipments*

J. M. Creelman, B.S.A., Dominion Cold Storage Division, Grimsby, Ont.

IN peach packages there has been quite a controversy as to just what packages are best. We have tried out a number, namely, the six-quart and eleven-quart Climax baskets, the six-quart and eleven quart Leno baskets in the Hunter and Woolverton crates, the Michigan bushel basket, and the Standard peach box. These packages we observed and had others express their opinions on them.

The method of behavior of the Climax basket is, in long-distance shipments, more or less known to us. It is fairly satisfactory under some circumstances, but it is not a trustworthy package; that is, it is very easy to put up a dishonest pack. In fact, it is easier to do so than otherwise, and this is not a satisfactory condition, and it is very easily broken, and does not display its contents overly well.

The Hunter crate is a two-story affair which holds four eleven-quart or six six-quart lenos. It is of rough undressed lumber, which rather depreciates from its appearance. Further, it is very heavy, weighing about eighty pounds. It is a bulky package, and not an appealing one to look at. Further, it is not altogether satisfactory for long-distance shipments, as the fruit on the top cannot be packed perfectly firm and moves slightly with the motion of the car. A long journey is likely to cause a bruise or soft spot from this rubbing. It may have its use as an express package, but it is not pilfer-proof and is unattractive. Dressing of the wood might help this to a great extent.

The Woolverton crate is a much more attractive crate. It is smaller and is built in two sizes, for three six-quart or three eleven-quart leno baskets. The cover is solid, of two pieces, and the sides are near the top, which makes it pilfer-proof. It is rather open at the bottom, and so allows for good ventilation. It is strong, and yet is not heavy, as it weighs about thirty-five pounds for the six quarts and sixty pounds for the eleven quarts, or maybe a little heavier. It is a much more attractive package, but has the same fault as the Hunter crate, in that the jarring causes trouble from bruising. This package, however, seems to be admirably suited for express shipments of small lots. Its worst fault is that it is too bulky to be of use for carload shipments. That is, you fill your car full and yet have not your minimum weight. This last is also a fault of the Hunter crate.

Bushel Baskets.

There has been an impression gaining headway among some fruit growers that the bushel basket, as used in a number of the American peach-growing districts, was just what was needed in this country. With this idea, we made a shipment of Elberta peaches in bushels to Winnipeg. These were picked hard ripe and packed in these baskets, which had a post in the centre for support and a paper pad over the top for protection. The fruit arrived in Winnipeg in excellent shape, but would not sell. In fact, they hardly brought the freight and icing on them.

Package Not Satisfactory.

Here seems a funny state of affairs. The package was attractive, in its way; was strong enough, it loaded easily in the car, was cheap, but the market didn't want it. Why? Well, I simply summed it up this way: Peaches in Winnipeg, as in nearly all the west, are more or less of a luxury, being comparatively high-priced, and being so they were used to them in an expensive package, so did not take to these. They expect their expensive fruit put up right, and will pay for it that way. This practically throws the bushel basket out as a peach basket for long-distance shipments, because it means that, although it may carry the peaches in good shape, by the time they go some distance, they are too expensive to bring good prices in a large package, because people can't afford to pay a high price for a lot.

In the west they desire a high-class package for peaches. We find there the standard western peach box, 18½ by 11½, and with varying depths from four inches to five inches. Practically all the peaches that enter the west are in this case, at least all that come in from Washington, Oregon, and British Columbia. In it the peaches are packed in a diagonal pack and are wrapped in tissue paper. This seems to be the ideal package. It is strong, attractive, displays the fruit well, if properly packed, loads easily in cars, is excellent for express shipment, pilfer-proof, with cleats, allows plenty of ventilation, is the most efficient to handle, if trucks are used, and it is not hard to pack. It is, in my opinion, the ideal package for peaches. I believe it is also the only package in which peaches can be shipped to England.

I have always heard it said that to put peaches in England the shipper ate up all his profits in packing. All I saw packed were certainly eating up a bunch of profits in excelsior and similar material.

Seeing no reason why hard ripe Elbertas should not go to England in a straight commercial pack, last summer, when the Grimsby Co-operative Growers were shipping three cars of pears to Glasgow, we put in thirteen cases of Elbertas packed commercially, that is, just wrapped in paper. To make it perfectly commercial, I had one of the girls pack them up, and I told her nothing except that I wanted them packed. Although there was some waste in the pears, the peaches arrived in excellent shape and sold for fourpence to sixpence apiece.

For shipment to the Canadian west, I would use for strawberries and sweet cherries the British Columbia full pint Hallock crate; for sour cherries, the six-quart Climax basket, and for peaches the Standard western peach box.

Handling strawberries on a commercial plantation. Note the type of picker's basket used.

*Extract from a paper read at the last annual convention of the Ontario Fruit Growers' Association.

A Woodpecker after the borers and with a billful of wood-boring larvae. They are great destroyers of codling moth and other insect pests.

Useful Birds

Two useful birds that deserve to be encouraged and protected are the Woodpecker and the Chickadee. The Woodpecker feeds on larvae and small insects, which are found in crevices of the bark; securing them with its protrusible tongue. This tongue is sharp, hard at the end, has barbs directed backward, and can be extended several inches. The red-headed Woodpecker, besides digging insects out of bark, seizes them on the wing. In the examination of over seven hundred stomachs of Woodpeckers, animal food, mostly insects, was found to constitute seventy-six per cent. of the diet, and vegetable matter twenty-four per cent. The animal food consists largely of beetles and caterpillars, and includes many harmful species.

The Chickadee is another most active insect destroyer. It is especially active in the vicinity of any timber or wood chopping. The birds will become very familiar, and will readily make friends. Not being equipped, as the Woodpecker is, with a long bill, they take advantage of the cutting of cordwood, etc., to secure the grubs found under the bark or exposed in the cutting. As a rule, however, they feed upon the insects of the orchard, the bush or shrubbery.

The Woodpecker and the Chickadee are only two of many birds which are of great service both in the city and country. They should be protected in order that they may continue their valuable work.

Lime, Sulphur and Paris Green

Prof. W. S Blair, Kentville, N.S.

ONE plot of Kings at Berwick, containing three trees, in 1915 was sprayed four times with lime sulphur, sp. gr. 1.008, with 1½ pounds of paris green per 100 gallons. These trees were sprayed on the same dates as other King plots. The hand pump was used at a pressure of 140 pounds. The amount of bloom was the same on these as adjoining trees.

As a result of this application not only was the foliage badly injured and the trees practically defoliated, but the fruit clusters were so damaged that all the fruit dropped soon after blossoming and not a single fruit developed. This experiment would show that paris green cannot be used in the lime sulphur spray without causing very great injury to foliage and possibly the loss of an entire crop of fruit.

What Co-operation Means

Seth J. T. Bush, Morton, N.Y.

Co-operation is a call to reason; it represents a deliberate effort on the part of the growers to secure for themselves a larger part of the consumer's dollar, through the elimination of much needless expense in the sale and distribution of their products.

It means better packing, the elimination of glutted markets, protection of the grower's interests, prompt collection of just damage claims, and better prices for what you buy and what you sell.

It means a discontinuance of the custom of allowing the "dealer" and speculator to place a mortgage of from 10 to 25 per cent. on the crops you produce.

It means that the grower will do his own gambling, and have a chance at the results.

"High-Cost-of-Living" prices don't help the farmer, because he doesn't get them; his part of the consumer's dollar is only THIRTY-FIVE CENTS.

It is a fundamental principle of economics that higher prices stimulate production, but it will not work unless the increased price goes to the producer, where it belongs.

As the population of our cities has increased a great deal faster than the population of the country at large, the difference in the price paid by the consumer, and that received by the producer, has increased in like proportion, until a condition of commercial piracy exists, which has no justification whatever, and must be fought by every means available.

The producer must receive his legitimate proportion of the value of his product. Co-operation, direct selling, and the elimination of all needless expense and commissions are all means to this end.

There are many things which the grower needs—things which are vital to his success, but individually he can do little or nothing toward their attainment. We need and must have better transportation facilities—a wider distribution of our products to every nook and corner, where they will be appreciated and consumed, and better and saner legislation on all matters affecting our business.

The freight rates charged by the transportation companies, on peaches in particular, should be reduced.

The Compost Heap

Successful gardening operations necessitate the possession of a good compost heap. It is easily made and a wonderful convenience and help. It stimulates growth in flowers and produces bigger and more highly colored blooms. For roses especially it is unequalled. A compost heap of manure from cow barns is used by all big rose growers.

The foundation of a compost heap is manure which is best obtained from a cow stable. In case this is not available, strawy manure from horse stables or droppings from poultry houses will serve.

Pile the manure about a foot deep, then alternate layers of sods, lawn clippings, weeds and any other vegetable material with manure. In dry weather the heap should be watered and should then be left until the material begins to decay. Turn the heap over occasionally and add some fertilizing material; also some additional clippings, weeds, leaves and other similar material. One advantage of a compost heap is that it affords a means of converting almost every kind of garbage into valuable fertilizer.

A compost heap of this character should stand a year to be really most valuable as a fertilizer. If, however, it has been kept damp and turned frequently it can be used in the course of two or three months. In a year's time a compost heap should be mellow, fine and black and sufficiently moist to make a ball when squeezed in the hand. It should not be wet nor should it emit an offensive odor. Once started, a compost heap may be maintained year after year by occasionally adding the materials from which it was originally made.

A Velvety Lawn Adds Beauty to the Garden

B. C. Tillett, Hamilton, Ont.

THERE is no feature of our garden more important, if we would have it look well, than a perfect piece of lawn. It may be said to be the frame to the picture—the finishing touch. A really good velvety lawn is, in fact, worthy and generally receives as much admiration as the flower borders behind it. There are some lawns, hardly worthy of the name lawns, that never were good and never will be, except by relaying. A perfect lawn depends, to a very great extent, upon the seed used. This must be the best lawn seed and guaranteed free from hay, meadow grass or clover seed.

A new lawn can be laid down either in the spring or in the fall. Spring planting makes the new grass to become well established before frosts arrive, but fall planting has this advantage that any weeds coming up will be killed before they can seed. Of the two plans spring seeding is the most recommended. Before putting the seed on the ground it answers to thoroughly well prepare the soil. All weeds, roots, stones and rubbish must be removed. Indeed, if one can spare the time, and the lawn is not to be a very large one, it is an excellent plan to put the surface soil through the sieve, so as to get a dressing of an inch deep or so, of perfectly clean soil all over. If the soil is a very poor one, some well rotted manure must be mixed in with the sifted soil or at any rate kept near the surface. After the soil has been carefully levelled with the rake it should be rolled, or carefully trodden or beaten down. It must then be raked over gently again. This raking must be very carefully done so that the surface is left absolutely level and free from even a single small stone. For this purpose employ the back of the rake when the soil is fairly dry.

It is essential that the seed should be sown on absolutely even ground. It must not, therefore, be trodden on again after the final raking. In order to avoid this, a strip of ground about three feet wide should be marked off with the garden line. After this has been sown, rake out the feet marks, and measure off another strip of the ground in the same way, each time levelling out the sower's feet marks.

The seed must be evenly sown and fairly thickly, so that all the ground is well covered. It should then be lightly raked in, taking care that the evenness of the ground is not disturbed, and that no footprints are left. The ground should then be rolled in order to bury any uncovered seed, which will then germinate with the first shower of rain. If the weather remains dry, the ground may be syringed over. As to the quantity of seed required, one pound will sow about thirty square yards of ground.

The grass should be allowed to grow until it is four inches high and should then be cut with a sharp scythe; afterward the machine may be used, setting it high; cutting too close weakens the young plants. Those who have made new lawns this year, will find them making good growth by now. If there are any bare places these should be reseeded. The new lawn should be cut regularly once a week, and when there is little rainfall, watered in the shade of the evening. Never water grass when the sun is overhead. A suitable tool should be used to remove weeds, such as dandelions, daisies, plantains, docks, etc. These will always appear even when the best seed has been sown, as there are certain to be some weed seeds in the ground, but, if taken in time, the grass will soon become master of these, and they will disappear.

In order to possess a fine lawn, there must be constant cutting, rolling, and watering. Nor should the broom be spared, a thorough brooming does a lawn good. Always use a catcher on the mower. It is a mistake to leave the clippings on the lawn. If the weather is excessively hot and dry, there is

A really good velvety lawn, such as the one here shown, is worthy of as much admiration as the flower border which constitutes its frame.

A bed of maiden hair ferns, 9 years old, in the garden of Dr. Douglas G. Storms, Hamilton, Ont.

some advantage in leaving the clippings as they help to conserve the moisture, but they do not improve the appearance of the lawn. In very dry weather the lawn should not be cut too close. This can be avoided by lowering the roller a little.

It pays to roll the lawn. The best time to do this is early morning when the dew is fresh upon it. If there are an abundance of worm hills, brush the lawn over first, and spread this valuable new soil over it.

Nothing enhances the looks of a well kept lawn more than well kept edges. There is an art in edging. A line should always be used when making a new edge, especially around a curve. Edging need only be done once or twice a year. Grass that overgrows the edge can be readily kept back with the long handled edging shears. Neatly trimmed edges, whether around a lawn, around trees, walls or borders is the artist's finishing touch, as is the ribbon to the bride's bouquet.

Where practicable, use winding paths and small strips of grass dividing your flower beds or vegetable garden beds; these greatly increase the beauty of a garden. Over such strips a pergola may be arranged and a charming effect given to the whole by training over the pergola some climbing roses such as Crimson Rambler or Dorothy Perkins.

It is important in establishing a lawn to choose a site where the soil is deep, fertile, and in good physical condition. If these conditions are not found naturally they should be obtained artificially by drainage, cultivation and liberal manuring.

Transplanting Ferns

Dr. Douglas G. Storms, Hamilton, Ont.

The accompanying illustration shows a bed of Adiantum Pedatum (Maiden Hair Fern) in my garden. At the time of photographing these plants were seven or eight years old. The plants were taken from the woods at any time that I chanced upon them, some in the latent state, others half grown, and still more full grown.

The plants were taken up with lots of the natural mould about them and planted in the bed as soon as I reached home. After once being planted they were never touched, but left severely alone. The bed was located on the north side of an out-house in the rear of my garden, but was exposed a good part of the day to the full heat of the sun, which, by the way, does not affect this particular variety of fern, harmfully. Anyone wishing to make a bed of the Maiden Hair Fern has only this to remember, plant them carefully and then do not coddle them.

June Vegetable Reminders

Set out a strawberry and a raspberry bed.

Make another sowing of peas, spinach and radishes.

See that a bird bath is built, out of reach of the cat.

There is still time to sow grass seed and establish a good lawn.

Every garden should have an herb border. Many of the herbs are ornamental as well as useful.

Keep the onion field clean and well cultivated.

Make another sowing of peas, beans, beets, carrots, spinach, and Swiss chard.

Clean seed, clean soil, and good cultivation should give a good crop of potatoes.

Thorough cultivation must be given vegetables, fruit and flowers, if best results are to be obtained.

Peppers and egg-plant should not be planted outside until settled warm weather arrives.

Peas and beans may be planted between rows of newly-set raspberries to advantage.

A few radish seed scattered with onion or other slow growing seed will mark the rows so that cultivation may begin even before the plants are up.

It pays to prepare vegetables as well as fruits neatly for market. Clean, attractive packages do not cost much more than unattractive ones and bring much better prices.

Soak celery or tomato plants thoroughly for several hours before transplanting. This will enable you to carry more dirt with the plant.

A good hand cultivator makes gardening easier. With proper attachments, furrows may be opened, seed covered, and weeds killed.

Plant a few pots or berry boxes of cucumbers, melons, or other vegetables for early use. Keep in cold frame or hotbed until the first week of June, when all danger of frost is over, and then plant out.

June Floral Suggestions.

Roses should have been pruned before this, but may be gone over now. All weak or injured wood should be cut out.

Don't forget to plant a few nasturtiums, California poppies, petunias, or other annuals in the garden.

Liver of sulphur (powdered sulphur) dusted on the leaves of roses and other garden plants inclined to mildew will keep it in check.

Plant a few gladioli bulbs. They provide excellent cut flowers in early autumn. The bulbs are cheap this year and should be planted in quantities.

Set out shade trees and shrubs if it has not been attended to. Spread the roots well and fill in with fine rich soil. Always make this soil firm about the roots. Leave the top soil loose.

Flowering cannas require a warm, rich soil and must be given plenty of water in hot weather. Many varieties flower well. The bulbs are easily stored over winter if not allowed to get wet or too dry.

Mignonette is hard to transplant, but the seeds may be sown where it is desired they shall bloom.

Ferns from the woods and swamps will make attractive the shadiest spots about the house. Leaf mould or decayed chip dirt will provide a soil which develops a luxurious growth almost equal to that in their native haunts.

If you have a bare, dry spot that gets the sun all day, where other flowers do not thrive, seed it to portulacas. They will crowd out the weeds and give you an abundance of bright, cheery flowers all summer long.

Keep the lawn mowed this month if a close, fine sward is wanted. Nitrate of soda is a good fertilizer to apply for quick effect on the lawn. Use at the rate of from 150 to 200 pounds per acre. Put on just before watering or during a rain. It should be applied two or three times during the summer.

The Baby Rambler rose succeeds very well planted out. The flowers of the Baby Rambler are often nearly single. They succeed better out of doors than in the window. They are not good window plants. Monthly roses will not flower the year round successfully. A month or two of partial rest is essential.

The Control of Enemies of the Rose

F. E. Buck, Central Experimental Farm, Ottawa

THE rose is troubled with many enemies. It is no exception to the rule that every living thing has its enemies. Being "Queen of the Flowers," its enemies are not the less but greater in number than of many humbler flowers.

The beauty and worth of the rose, however, make the task of defending it against its enemies more interesting than irksome. Although its enemies are numerous, but few are serious. The whole secret of successfully fighting its enemies might be implied in these six words:

Be prepared. Be thorough. Be cheerful.

Its enemies may be placed within three groups:

Group 1—Insects which chew or feed on its leaves and buds.

Group 2—Insects that weaken its vitality by sucking the sap from its leaves and growing shoots.

Group 3—Fungous diseases which attack leaves, growing shoots or mature branches.

Be Prepared.

To be prepared is to have on hand, as a good housewife would have simple remedies on hand for household troubles, a few mixtures to meet all emergencies of the rose garden in their early stages. Prevention, not cure, should be the first aim of the rose lover.

The recommended preventatives are of three types:

First—A poison to apply to the leaves so that any insect which feeds on the leaves will immediately succumb to its effects.

Second—A soapy or caustic (smothering or burning) solution to apply in the form of a fine spray, or dry, and very fine powder, so that any insects which injure the plant by sucking its juices will be killed by contact.

Third—Some chemical compound, preferably one containing copper, which can be applied to the foliage in the form of a spray and which will adhere to the foliage and prevent the growth of mildews and other fungous diseases or blights.

The poisons generally used to effectively prevent the ravages of insects of the first type are either paris green or lead arsenate. Both are sold by seed stores, the first generally as a powder, the second as a paste or powder. Both are easily mixed and it requires a very small quantity to be effective. About one teaspoonful of paris green or two of lead arsenate to a gallon of water is all that is required.

The compounds used to combat the second type of insects, of which the green aphis or plant lice are typical, are either a mixture composed of nicotine (tobacco extract) and sulphur, or a simple soap solution. The first is very effective and is sold as nicotine sulphate or under other trade names. The second may be made at home by using any soap which contains a percentage of oil, such as fish oil soap, or "Ivory" soap.

The compounds used to prevent or destroy fungous diseases or mildews, etc., consist of copper compounds or sulphur compounds. In as much as some forms of the commercial nicotine sulphates (used to kill green fly), contain a small percentage of sulphur, it is often found that this spray is helpful in keeping down fungous diseases as well as insects. However, ammoniacal copper carbonate is a good spray to prevent "leaf spot," and liver of sulphur (potassium sulphide) is another spray used to prevent "mildew."

Be prepared by having on hand the following:

A. Paris green or lead arsenate. If the plants are few, picking off these insects by hand will answer equally well. B. Nicotine sulphate. C. Liver of sulphur. D. A spray outfit.

Total cost, from two to five dollars.

Watch for chewing or feeding insects in May and June.

Watch for sucking insects (green fly or plant lice) in June, July and sometimes later.

Watch for fungous diseases in July, August, September and in June if the spring is wet or cold.

Be Thorough.

Thoroughness is essential. For instance, one plant louse may increase from one to sixty-five millions in about six to eight weeks. In fact, the rate of increase of this pest is so extraordinarily wonderful and rapid that it can be best emphasized by citing what would actually happen if Nature was not kind enough to help us fight the pest by means of birds, the lady bird beetle, and in other ways. One female produces about eighty to ninety young ones. Each one of these producing young in the same proportion and at the maximum rate of increase will produce aphids enough to cover the four walls of about twelve rooms thirty by twenty feet. And this even when they are packed very close together as sheep in a pen are packed. Be thorough for the reason that unless all are destroyed spraying appears to be ineffectual. It is the extraordinary breeding habits that account for the continuance of this pest.

By cheerfully performing these services for our garden friends we gain additional interest in their habits and needs. If the work is performed grudg-

A bank of roses in the rose garden of Mr. John MacGrady, Pointe Gatineau, Que., near Ottawa. Many Ottawa citizens visit this garden each year while the roses are in bloom.

A spike of Madonna lily, 4 feet tall, with 14 perfect lilies on it. Grown in the perennial border of Mrs. Laura Rose Stephen, Huntingdon, Que.

ingly it is seldom performed efficiently and the results are not satisfactory. A little stroll around the garden in the early morning or again late in the evening will reveal many interesting things, and although it is next to impossible to keep any garden free from all visits of insects and fungous diseases a cheerful expectation of the enemy and the knowledge that he can be combatted without much difficulty turns the work of fighting him into an interesting phase of gardening effort.

Enemies of the Rose.

The eating or chewing insects that attack the rose consist of various small caterpillars, beetles, saw-fly larvae and the leaf-cutting bee. None are very troublesome except in certain special cases. Remedies—Hand picking or a poisoned spray.

Sap sucking insects include Green aphis or plant lice, the one really troublesome insect in this class. Leaf hoppers, which cause a mottling or marbling of the leaves. Their larvae work inside the leaves. Frog-hopper or the Cacker-spit insects. Scale insects, not common. Remedies—A nicotine or soap mixture, or in the case of number two, picking off the affected leaves in the early stages.

Leaf-miners are the larvae or maggots produced by a minute moth. They are generally troublesome in June and in August. The minute maggots live and feed inside the leaf under the epidermis, also causing the leaf to turn mottled or brown. Remedies—Picking off the affected leaves as soon as they appear, or frequent sprayings with nicotine will keep them under control.

Thrips are a minute insect produced by a small fly. This trouble is similar to that produced by leaf hoppers. Remedies—Nicotine, cold water, or hand picking of leaves.

The red spider is a very minute spider-like insect working on the under side of the leaves, seldom visible to the naked eye. Results, a mottling and yellowing of the leaves. Remedies — Spraying with cold water, liver of sulphur or nicotine.

Diseases.

Black Spot is the most troublesome disease of roses in eastern Canada. It appears in the form of large black or purplish spots in the leaves. First appearance generally about late July or early August. Remedies—Thoroughness with any copper or sulphur spray, such as ammoniacal copper carbonate, or liver of sulphur. Lead arsenate will also keep it under control.

Mildew is a troublesome disease of the rose in western Canada, and in the east during damp or cool weather. It generally appears late in the season in the east. This disease causes a whitened or mouldy appearance on the leaves and terminal shoots. Remedies —Liver of sulphur as a spray or flowers of sulphur dusted on.

The Amateur's Fruit Garden

M. B. Davis, Central Experimental Farm, Ottawa

Tree fruits should be pruned in early April or in June. Wounds made in June will heal much better than wounds made a little earlier. At that time it will be well to cut out those old canker and diseased areas, and paint the same over with pure white lead and oil. If you did not remove the old canes from the raspberries last fall, it should be done at once, as they will only interfere with the new growth. The currant and gooseberry plantations may be pruned any time now.

Aphis and caterpillars will bear watching. For aphis use a weak tobacco extract, and spray it on them, or if you have only a few bushes, dip the leaves in the solution. Kerosene emulsion is also good, and can be made by anybody. For the caterpillars use Paris green, one ounce to six gallons of water, mixed with a little milk of lime. Watch for the currant worm, and get that first brood with Paris green, one ounce to ten gallons. For the second brood use hellebore dusted on the bushes when they are wet with dew.

Helping Flowers To Last

Flowers should if convenient be gathered at some other time than during the heat of the day and be placed in water in a cool place as soon as possible. After this treatment, they will keep much better than they would if not induced to fill up with water. Most flowers keep and look better if gathered when in bud just before opening. This is true of roses, poppies, peonies and others. Double flowers as a rule keep longer than single kinds.

For cut flowers in the house it is very desirable to have kinds which will continue to develop buds into flowers after being placed in water. Perhaps no kind has this quality in a more marked degree than the gladiolus. During parching hot winds it is possible to have such in their greatest beauty in the house when the weather will not permit such conditions out of doors. Before storms it is well to secure a supply of flowers for indoor use that their beauty may be enjoyed while those out of doors are recovering.

Some kinds which have a milky juice like the poppies and some others, as the dahlia will keep better if the tips of the stems are dipped in very hot water before they are cared for in the ordinary way. It is well nigh impossible to have the oriental poppies hold up fresh without such treatment.

Poppies should always be gathered in the bud just before they are ready to push through the calyx. With kinds which last well in water it is desirable to renew the water often, otherwise the smell of decay at the base of the stems sometimes becomes offensive, which is not healthful.

For aphis (green lice) on roses, spray with a nicotine solution. A perfectly good solution may be made by pouring two quarts of boiling water over a pound of tobacco stems. This decoction may be used with safety on roses without dilution. Do not **boil** tobacco in water; this drives off the nicotine; just **steep** the stems. Almost any form of tobacco will answer, but the stems are cheap.

The first consideration, when planning the perennial border, is a suitable background. This may be trees, shrubs, vines, or even the taller growing herbaceous perennials. The smaller growing species should be brought to the front of the border, so they will not be hidden by taller kinds. An irregular profusion of plants and bloom is more interesting and pleasing than any attempt to arrange the various kinds in formal lines or square blocks.

The Garden in the Critical Month of June

Geo. Baldwin, F.R.H.S., Toronto, Ont.

IF you happen to be moving about the last of May, do not be disheartened about a garden, for anything that will thrive and bloom in a garden, may be planted the first week in June, except the early blooming shrubs and perennials, so get busy and carry out the plan shown in the April number of The Canadian Horticulturist.

Shrubs are beginning to bloom now. When they are through blooming is the time to prune and then only. It is warm enough now to plant anything, and practically all danger of frost is past, so if you haven't already done so, plant out everything you want in the flower and vegetable garden. Keep right on cultivating in the perennial border. I find a three pronged scratcher is a splendid tool for this purpose, especially if the border is well filled. Move all indoor plants out of the house, repot if necessary, and plunge them, pot and all into a partially shady spot in the border.

This is the most critical period with the rose bed. Look out for small caterpillars and green fly. Don't let them eat the very heart and soul out of your bushes, but start the spraying operations at once. Taking it for granted that you will mix your own sprays, the following table if carried out as to dates and quantities will be found sufficient, and will ensure your having a good crop of roses again in September and later.

June 1st.—Whale-oil soap, one pound to 8 gallons of water.

June 5th.—Potassium sulphide 2 oz. to 4 gallons of water.

June 8th.—Whale-oil soap.

June 11th.—Potassium.

June 15th.—Arsenate of lead one pound to 10 gallons of water.

June 21st.—Arsenate of lead.

June 27th.—Whale-oil soap.

July 3rd.—Arsenate of lead.

This will be sufficient for one hundred bushes, smaller quantities in proportion.

The Vegetable Garden.

Vegetable seeds are now showing through, so start cultivating in between the rows at once, and as often as possible. You cannot overdo it. Watch the cabbage patch for the green caterpillar. Fight him with white hellibore, or Slug-shot, but fight him and don't have holes pitted all over the cabbage. The same applies to cauliflower. It is now time to plant out the celery plants, eight inches apart, and rows eighteen inches. Three weeks after planting you may begin feeding with liquid manure, once a week, gradually increasing in strength until Sept. 1st, then stop. If you are bleaching with earth it will be as well to sink an empty flower pot here and there along the bed, and pour the liquid into these.

Peas should be well up now. The tall growing kinds will need a little coaxing to climb up the brush. Keep sparrows away from them a while longer. It is time now to put in another sowing of peas, beans, lettuce, radish, etc., for succession. Start earthing up the potatoes as soon as they are five or six inches high, and cultivate well in between the rows. Also stir well the soil around cucumbers until the foliage stops you and be sure to scatter a little lime and sulphur occasionally to keep the soil sweet and chase the squash bug away. Thin out the carrots, beets, and parsnips, in their young stage, to six inches apart, and leeks and salsify eight inches. Earth up leeks the same as for celery.

Onions if growing from seed will need watching very carefully for root maggot. Use some lime and thin out to four inches apart. As soon as they are six inches high you may start feeding with liquid manure the same as for celery. Hill up corn the same as for potatoes. It not only makes them grow stronger, but prevents wind from blowing them down. Do not pull all the sticks of rhubarb, only the largest, and be sure to cut down the seed stems. Give the asparagus bed a slight salting now, and don't let the soil bake. Keep the strawberry bed clean of weeds, and don't forget using a litter to keep sand off when it rains.

I look into hundreds of gardens in my travels, and very rarely do I find fruit trees, unless it is a few raspberry canes, or one or two currant bushes. There is no reason why the small householder cannot have four or five fruit trees, even if it is a small garden, by getting the trailing and dwarf varieties. I prefer the former. If planted so that they will trail due east and west, only the width of the tree shades the garden. The accompanying illustration shows a six year old apple tree five feet high and fifteen feet long, growing in my garden. As I write it is smothered with blossom and I expect to obtain a good crop of fruit.

Spraying Necessary.

Spraying for insects and fungus is just as necessary for fruit and vegetables as it is for roses. Give quantities suitable for an ordinary sized city back garden. Start off with bordeaux mixture. If used properly and at the proper time it will control fungus diseases, such as anthracnose on beans and cucumbers, leaf-spot on beets and currants, potato blight and many other ills. It is a preventative if used early. Dissolve one table spoonful of copper-sulphate in one quart of warm water, then one and a half table spoonfuls of unslaked lime in another can. Slake it gradually with water until you finally make one quart of liquid. Mix the two liquids together in the old garbage pail, and add two more quarts of water. You

Amateur Gardeners might well adopt this method of training fruit trees. It avoids heavy shading of plants growing nearby. Note the article on this page.

A useful, labor saving garden implement which saves many a backache.

then have one gallon of bordeaux ready for spraying.

Formaline is used for immersing potatoes in before cutting, and prevents blight. Use one-eighth of a pint of formaline to four gallons of water, and let the tubers dry in the sun before cutting. Paris green, the old standby for leaf eating insects, has been set aside in favor of arsenate of lead, mixed with bordeaux mixture for potatoes, as it answers the dual purpose of killing the bugs and preventing blight, and does not injure the plant by burning.

The fight against weeds should be begun promptly, and carried to a finish, it means war to the knife. The frequent stiring of the soil between and around the plants, furnishes one of the best means of protection against drought. Break the crust after every rain, in order to admit air to the roots. Don't make the mistake that cultivating is merely a means of checking weed growth, for weeds are merely a manifestation of nature's kindness to man, as they force him to stir the soil, thus giving the required food, water and air to the roots. It cannot, therefore, be considered that weeds are altogether a curse, but rather a necessary evil. Remember that if weeds will not grow there is not much use trying to make anything else succeed.

By now you have planted the tomato plants, either against the fence facing south, or in the centre of the garden. If on the fence allow them four feet of space for each plant. Train four shoots (only) up in fan-shape, tying to chicken netting. If the plants are in the garden place four stakes in, at an angle of 75° outwards, the stakes to be one and one-quarter inches square, and five feet above the ground. Tie the shoots at intervals of eight inches as they grow. When the fourth set of bloom is formed, pinch out the tops of each shoot and give a little liquid manure and nitrate of soda about every two weeks till the fruit starts to turn colour. Water only the roots and not the fruit and foliage, and thus help to avoid the black rot. Do not cultivate deeply close to the plant, as the roots have a tendency to be near the surface, especially in dry weather. Use the rake and not the hoe for this operation.

Hardy Perennial Borders

Mrs. E. P. Smart, Brockville, Ont.

AFTER many years of gardening and varied experiences with all sorts and kinds of annuals, a most successful horticulturist was heard to say, "A really beautiful garden without hardy perennial borders is an impossibility." A good many amateur gardeners are trying to do the impossible in this respect, thinking that the making of a permanent hardy border is too much of an undertaking and does not give immediate results. True, the second and third years of the hardy flowering perennials are the better years, but it is quite possible to have a good show of flowers in the first season after planting, if sufficiently large roots are obtainable. As yet, there are few, if any, flower growers who deal exclusively in the perennial varieties, and who are thus able to furnish large roots for immediate results; but the demand for this class of plant is becoming so much greater, that it will soon be possible to obtain perennial flowering plants of sufficient size and vigor to produce a respectable show of bloom the first year.

There are several methods of planting hardy perennial borders, the most common, and certainly a very satisfactory way, being to plant indiscriminately, as to color, keeping, of course, the taller growing varieties in the background. This is what may be called the "riot of color" system, and the majority of hardy beds and borders are so planted. Another system, and one which produces very artistic results, is to plant in masses of harmonizing colors. To be more explicit, let us suppose a large bed of perennials is to be set out, one which will be seen from all sides (though the same plan works equally well in border planting), a beautiful arrangement would be to plant the tallest growing delphiniums (blue) in masses in the centre, with occasional white flowering plants, such as achilleas interspersed about the edge, the whole mass surrounded by the garden lily, lilium candidum. These blossom simultaneously and produce one of the most remarkably beautiful results; the creamy white of the lilies standing against the background of dark green foliage and the blue racimes of the delphiniums borne high above the lilies. One should see this arrangement to really appreciate the exquisite effect produced by it.

In the matter of planting phlox, the finest results are obtained by planting a dozen or more clumps of one shade side by side, either in rows or in a group, rather than by mixing of the various colors. The bright red phlox planted in this way makes a most striking picture in a bed or border. It is much more artistic to have a quantity of one variety than to have plants of every shade and color.

This, of course, as has already been said, is the "artistic" system of planting the hardy perennial border or bed, and it can be carried out in any color or harmonious arrangement of color. Masses of yellow or yellow and white, yellow and dark blue, or yellow and red, would any of them be most effective. In fact, there is so much opportunity for individual taste in this sort of arrangement that gardens thus planted become, in a very real sense, "individual gardens," each reflecting the individuality of the owner and thus are increasingly interesting. Each possessor of even a small garden should aim to make his or her garden unique and consequently of more than passing interest to every one who sees it.

Robins will often clear a lawn of white grubs if the sod is kept moist so they can dig through it.

In transplanting lettuce or other soft foliage plants, do not set too deep. If you do, the water is likely to collect in the lower leaves and cause them to decay.

Early Season Work in the Garden

Henry Gibson

WE have now reached a period of the year when window boxes and hanging baskets become quite an important part in the embellishment of the home. Yet it not infrequently happens that many are dismal failures because the watering of them has been neglected. It must be recognized by those who make use of the receptacles that the small body of soil they contain, suspended in such a position that the air reaches them from all sides, will soon suffer from drought. Plants cannot grow when the roots are dry. It is better to let this phase of gardening alone if one cannot attend to the watering as it should be done.

The work of filling the boxes is pleasant and agreeable, and the number of plants that can be used in them is legion. Among the many we will mention but a few of the most popular with the amateur. Geraniums take first place, then come dracaenas, grevilleas, lobelias, fuchsias, ferns, achryanthes, verbenas, petunias, nasturtiums, Impatiens Holstii, begonias, and others too numerous to mention. Many of these are well adapted for growing in shady locations where not much sun will reach them. Ferns, nasturtiums and begonias are among the better known plants for this purpose. For covering the sides of the boxes, trailers are indispensable to give a finished appearance. Vincas (variegated), German ivies, tall nasturtiums, cobaeas, verbenas, and others of like habit may be used.

There is on the market a self-watering window box which saves a good deal of time in watering, though it is not to be presumed that this indispensable operation can be neglected altogether when this type of box is used. It is claimed by some that plants do not thrive as well in them as they do in the old-fashioned type of box, but we fear that it is neglect of proper care that has led to this conclusion. The drainage has to be seen to and maintained in good condition, and the reservoir needs to be filled from time to time as well as the pipe that carries the water into the soil. A very desirable feature of these boxes is that they are provided with a false bottom, which catches all drip, and one has not to avoid passing near them for an hour or two until they drain off as is the case with the old type of box. They are a great improvement on the old type.

The early flowering shrubs require to be pruned as they pass out of flower. These plants bloom on the wood produced the previous season, and it is with the object of making provision for strong, clean, healthy growth that pruning should be done. This consists of cutting away as much of the old flowering wood as is compatible with the symmetrical development of the plants. One may think it barbarous to cut away so much growth, but if you would have bloom in plenty another season, you will harden your heart and sharpen your knife and prune intelligently. Do not, however, make the mistake of indiscriminately cutting off the tops of the plants thinking thereby to attain the object in mind. Study the habit of the plant you are dealing with, and if you feel you do not know how, get some practical demonstrations from an experienced person. Among the many plants that need pruning at this time are lilacs, red buds (Cercis Canadensis), almonds, forsythias, spiraeas and snowballs.

The Vegetable Garden.

Vacant ground should be planted as soon as possible with main crops of such vegetables as are likely to be most in demand in the kitchen. The month of June is usually very dry, and such plants as cabbage, cauliflower and celery should be watered frequently, after being set out, so that they will start into growth the more readily. Earlier planted crops will, to a great extent, take care of themselves, save for the necessary staking of peas and hoeing of weeds. This last operation should never be neglected at this time of the year, for once the weeds get ahead of you they take a lot of keeping down. The best way to deal with the weed problem is to practise systematic surface cultivation, commencing early in the spring, and persisting with it all through the growing season. The light surface cultivation is easily effected by using a Planet Junior or Iron Age combined wheel hoe or cultivator. Stray weeds not reached by this implement should be pulled out by hand. Rotation of crops is also desirable, for it is certain weeds follow particular crops. Noxious weeds should not be allowed to grow in the hedgerows or anywhere about the garden or odd corners, and coarse stable manure, which often contains large quantities of weed seeds, should not be used on land undergoing the process of cleaning.

Keep the seeds off the rhubarb, and if you are particularly fond of this vegetable and want the crop to continue feed freely with liquid manure, or apply a mulch of well rotted manure. The tomato trellis should be put in place preparatory to setting out the plants, which can be safely done after June 10. Egg plants and peppers may also be set out at this time. Go over the strawberry patch and clean out the weeds before you apply the mulch of straw to keep the fruit clean, at the same time applying a good fertilizer. Get your supply of baskets for picking the fruit, for they are useful for many other purposes around the garden. Early started celery can be set out in June. We plant this in deep drills in preference to throwing out trenches, thus causing the plants to root into the poorer sub-soil. In adopting the trench system one has the advantage of flooding the trench with water should the season prove a dry one, which is of more than passing value to a water loving plant like celery.

A perennial border and arch in the garden of E. R. Langton, Beyerville, Que.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

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1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests. The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, and of The Canadian Horticulturist and Beekeeper, $1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising rates, $1.40 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December 1915. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 13,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1915 ...11,158	August, 1915 10,294
February, 1915 ..10,942	September, 1915 .10,067
March, 1915 10,864	October, 1915 ...10,017
April, 1915 10,917	November, 1915 . 9,704
May, 1915 10,927	December, 1915 . 9,253
June, 1915 10,329	
July, 1915 10,448	Total 124,920

Average each issue in 1907 6,627
Average each issue in 1915 10,410

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not apply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honorable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

Marketing Agencies

Every year a cry goes up from the fruit growers that the system of marketing the fruit crop needs to be overhauled and rearranged. While there are certain obvious defects in the methods now followed most growers seem at a loss to furnish practical suggestions as to how existing methods of handling the fruit in the large consuming centres can be improved. This is hardly to be wondered at. Our present system of distribution, with its strong as well as its weak points, has been created of necessity. It has been subjected to much adverse criticism, but has proved its right to existence. Any re-adjustment of present market practices must be based upon the fact that some agency must continue to perform the functions of the present middleman.

The most difficult problem which confronts us has been created by the extension of transportation facilities to an extent which makes it possible for even tender fruits to be marketed hundreds of miles away from the point of production. This has widened the distance between producer and consumer, and created many difficulties unknown in the early days when fruit was sold near the point of production. Our present methods of marketing have grown out of these conditions. As production has increased consumers have demanded more efficient service, and this has tended to increase the number of middlemen. Any one who visits the large fruit marketing centres during the height of the season will recognize how impossible it is to-day for one man or one firm to handle both production and distribution and succeed at both.

What is needed, possibly more than anything else, is a system of making known daily the requirements of the different consuming centres and of regulating the shipments thereto by the producers. The success which has attended the business operations of the United Farmers of Nova Scotia, Ltd., has been due in a considerable measure to the fact that the company has regulated its shipments to the different European markets, so that they would reach there as far as possible during periods of shortage. To make such a system as this possible it is necessary that the growers shall be organized in local associations and that these also shall work in harmony with one another in the shipment of their fruit. When this has been accomplished it will be found that we will not have less middlemen than we have to-day, but that those engaged in the business will be more efficient because of better organization, and the possession of more accurate information relating to both production and marketing conditions.

Checking Transportation Interests

The concessions obtained from the railroad companies during the past few months, largely through the efforts of the transportation expert of the Ontario Fruit Growers' Association, have demonstrated once more how important it is that fruit growers shall have such an official to watch and promote their interests in negotiations with the railroads. No fruit grower has the time or the means to enable him to deal effectively with the railway and express companies. By engaging a man to look after this work the Ontario Fruit Growers' Association has entailed heavy expense, but the benefits derived have been out of all proportion to the outlays involved.

While Mr. McIntosh hitherto has represented only the Ontario Fruit Growers' Association, the time has come when steps should be taken to co-ordinate the interests of the different provincial fruit growers' associations and extend this line of work. While there are difficulties in the way, an effort might well be made to have this work conducted hereafter under the direction of either a committee of fruit growers, representing the different provincial fruit growers' associations, who would share the expense involved, or by the Dominion Fruit Division. The Dominion Fruit Division has experts watching market conditions and reporting thereon. It would be in harmony with this work to have a transportation expert attached to the staff to gather information relating to transportation conditions and suggest steps necessary for their improvement.

Protecting Bird Life

The protection of bird life in Canada is taking definite form. For many years there has been a noticeable decrease in the numbers of many valuable species of birds. Much of the increase in insect depredation has been due to the decrease of their natural enemies, the birds. This has led to a realization that steps should be taken to protect bird life. Some idea of the value of bird life to the gardener and fruit grower may be gained from the fact that the thrush, for instance, lives on spiders, ants, snails, angle worms, potato beetles grasshoppers, tomato beetles, squash beetles, plum curculios, army worms, codling moths and cut worms.

A little over a year and a half ago a Canadian society for the protection of birds was founded. Much good work has been accomplished since. Thousands of copies of a valuable report, "The Value of Birds to Man," by James Buckam, have been distributed, and the building of bird protections has been encouraged. As the result of a contest to encourage the building of bird nests by school children held this spring in Manitoba, some two thousand bird houses were made by the boys attending the manual training classes in Winnipeg. Similar contests should be held next year in many other centres.

A Creditable Effort

What constitutes the most ambitious effort at the publication of useful information in an attractive form that has come to our attention stands to the credit of the Ottawa Horticultural Society. This spring the society has issued a booklet of over one hundred pages entitled "Ottawa, the City of Gardens." It is a credit not only to the society but to the city. Were it possible for more of our societies to issue publications of this character a marked impetus to civic improvement would be noticeable soon throughout the country.

The chief expense of issuing publications of this character consists in the setting of the type. This being the case, could not arrangements be made by societies issuing literature of this character, to sell extra copies to other horticultural societies at a moderate price? The cost of making the necessary changes in the name of the so-

ciety and the city would be slight, as would be the cost of the extra press work and paper, which would be all the expense that would be involved. Our leading societies might well assist some of the smaller societies in this way.

The Ottawa booklet contains a surprising amount of useful horticultural information. There are articles dealing with the making and care of lawns; the making and keeping of a prize winning garden; a planting scheme for a front lawn thirty-three feet wide and for one fifty feet wide; a plan for a garden of flowers, flowering shrubs and vegetables in a lot thirty-three feet by one hundred feet; a list of the best hardy perennials; articles on the care of bulbs, lilies, sweet peas and other flowers, as well as much similar information. The booklet is illustrated and printed on high class paper. It is a most creditable publication. Would we had more of them.

The announcement by the British Columbia Department of Agriculture that the duties of Mr. R. M. Winslow, Provincial Horticulturist, have been extended to include the inspection of fruit pests, is an indication that the department recognizes the very capable work that has been accomplished for the fruit growers of British Columbia by Mr. Winslow. Mr. Winslow's thorough knowledge of the fruit industry, combined with his energy, ambition and tact, mark him as one of the most efficient provincial officers connected with the horticultural departments of any of our provinces.

Now is a good time to fix up the tool room so that the tools will be handy for use. Perhaps a few should be made or purchased.

SOCIETY NOTES

Winnipeg

The effort to interest the school children of Winnipeg in the protection of bird life has proved so successful, the following account by W. J. Waters, Director of Technical Education in the Public Schools of Winnipeg, of how it was conducted is of interest. Mr. Waters writes: "It was only last year that we first attempted anything of this kind, and although unorganized the partial success met with inspired us to greater effort. In January last I issued a circular asking the manual training teachers to give ample notice to their pupils that the first week in March would be devoted to the provision of bird houses to be constructed from material entirely provided by themselves. Two simple plans were shown and explained, but the adoption of these was not encouraged. The object of the proposed house was fully explained and the boys were asked to practice their ingenuity and skill in providing such a nesting home as would prove irresistible to a father or mother wren when they were searching for weather-proof quarters in which to bring up a family. It must be decorated to attract the bird, no gaudy colours, but just a simple little home that seems to belong to the natural surroundings, in which it was proposed to place it.

"The resulting accumulation of materials showed excellent judgment, and bark, mosses, twigs, split willow branches to be afterwards used in all kinds of design and usefulness were quickly stored. The birch, oak and jack pine in the local cordwood yards were stripped of their outer covering, the dealers entering into the spirit of the game, in many cases assisting to obtain suitable materials. Whole logs of pine and tamarac were sawn and split, the centre scooped out and suitable roof and flooring provided to restore it to its woodland appearance and make it a comfortable residence for a bird family.

"One half day proved all too short for the busiest period ever experienced in our rooms, and the houses were eagerly carried home to be finished. At least 1,500 of these have been brought back for the approval of the teachers. Exhibitions were arranged in some of the schools where the manual training centre is situated and great enthusiasm was aroused among the younger children, many of whom, both boys and girls, brought houses constructed at home, showing not only exceptional skill in construction, but wonderful ingenuity in providing such a home as would be attractive to a bird.

"Much remains to be done to meet the possibilities presented by the needs of bird life. Birds, other than those that nest in covered spaces, might be provided for; boys and girls encouraged to study their habits, developing an attitude towards them of untold value in the preservation of bird life of the future. Some of our authorities on bird life might well devote thought and time to devising shelter pockets and hanging receptacles suitable for particular varieties and thus giving new impetus to a movement still in its infancy.

"I am arranging to obtain photographs of as many of the houses as possible after they are occupied, and I hope by this means to discover what form seems most desirable from the birds' point of view and to arouse a new interest to push forward our effort of next year."

A view of the twelfth annual rose exhibition held by the St. Catharines Horticultural Society in the Armoury, St. Catharines, Ont., June 22, 1915. Such exhibitions are a successful feature of the work of many horticultural societies.

British Columbia's Fruit Growers Helped*

R. C. Abbott, Coast Markets Commissioner, Victoria, B.C.

DURING the season of 1915 my time was spent principally looking into the marketing conditions in the Pacific coast cities with the view of ascertaining the real reason why the markets in the past had made such poor returns to the grower. I endeavored to find if the prices paid by the consumers were in keeping with the returns sent to the grower, in assisting whenever and wherever possible in the quick movement of perishable farm produce sent in on consignment, in using my efforts where possible to protect the consignor against any advantage that might be taken of him by the unnecessary slaughtering of his consignment, and in urging upon the commission houses the necessity of making "quick returns" to the growers. Much time was spent in encouraging the trade and the public to buy home-grown fruit and produce in preference to that brought in from other countries during the season in which our fruits and produce were being marketed.

Our fruit and vegetable markets are continually being demoralized and kept in an unsteady condition by growers shipping their fruits and produce in on consignment irrespective of the condition of the market. Not only do they ship without previous notice to the commission houses but in many instances they continue to ship large quantities of perishable fruit even when requested by the commission house to stop. The outcome is, that the commission house has to get out from under this stuff, and in order to do so breaks the market. The loss falls not only on the offending shippers, but on many other shippers who are trying to solve the question of proper distribution and better markets. While we deplore this practice and have a thorough knowledge of the disastrous results caused by it, it will not be entirely overcome, as long as we have independent shippers, who from their end are unable to keep in daily touch with market conditions.

Shipping Direct to Retailers.

In a large city like Vancouver, which is the central marketing point for local fruits and produce, direct shipment to retailers on the consignment plan is detrimental to the best interests of the producers. Direct shipping to retailers at a set market price should not "hurt" our markets, but consigning to "cut-rate" retailers has brought little profit to the shipper and ruinous results to our markets.

It is impossible for any grower living at a distance to measure the selling capacity of a retail store, and invariably we find the retailer being over-loaded, who in turn either slumps this perishable produce off at ridiculously low prices or after holding it in his store until it is almost rotten, sends it to the commission houses to sell.

Patriotism and Economy.

Many appeals have been made to the consuming public of late to be more patriotic in their purchasing and the response has been greater than was anticipated. These have been strenuous times in the cities and many consumers have been forced to the point of placing "pocketism" ahead of patriotism, and these must not be judged too harshly, for many a man who in good times would give preference to home-products irrespective of price, has now to consider price first and price only.

Regular weekly market reports were issued from Vancouver from April 10th to December 31st. These reports were issued and mailed each Saturday night so as to be in the hands of the farmers Monday morning if possible. In making up these reports care was taken to have them give the true conditions of the markets and also to give the farmer an accurate list of market quotations.

In addition to the regular weekly reports private and individual reports were given out whenever requested.

Advertising.

Publicity work along with my other work became a necessary feature and although not carried on as extensively as I would have liked to have done, yet the results obtained proved to be of excellent value to our producers. The city press was made use of whenever the opportunity occurred. Good results were obtained from interviews and news items given to the public, acquainting them with crop conditions and the available supply of the various commodities. We find the consuming public hungry for such information. Reliable information given out regularly to the public along these lines brings remarkable results. The newspapers in the cities have supported us most admirably and given us free advertising, which we appreciate very much.

During our strawberry campaign our newspaper boosting was given free, and occasion was taken to place before the public information whereby they could gain some knowledge of the extent of our berry industry. The wholesale trade worked in conjunction with your markets commissioner, and on his suggestion carried, for three weeks, canvas banners on their delivery trucks bearing the words:

BUY
B.C. Grown
Strawberries,
Preserving Dates
June 1st to 14th.

Previous to our strawberry season and just when the heavy imports were likely to come in, 500 display cards were distributed to the retail grocers in the cities. This gave me an excellent opportunity to converse with these people and to place before them the facts in regard to the fruit growing industry of British Columbia, and to make an appeal to each of them to assist in promoting the sale of our products by buying only those grown in British Columbia.

These display cards covered both strawberries and raspberries, and appealed to the people to support "Grown in B. C. Berries," and thus keep at home some $85,000, which had been spent in 1914 in imported berries alone.

"Best time to buy B. C. Fruit" cards were also distributed through the retail stores.

A "British Columbia Fruit Booklet," containing some 225 recipes, besides other valuable information, proved one of our best, if not the best medium for advertising the merits of our fruits. Five thousand, seven hundred of these were distributed through this office. Of this number over four thousand were given out individually to consumers.

This little booklet might be termed the growers "Silent Salesman" and it has been the means of materially increasing the consumption of our fruits.

Those who put up their fruit without sugar met with good success, and large quantities will be done this way this season.

The consumption of tomatoes, just when there was a likelihood of a break in the market, was greatly increased by press notices and the issuing of circulars on the "Home Canning" of tomatoes.

During the season for soft fruits "Fruit Talks" were also given before the different Women's Organizations in the city.

After careful consideration had been given to the matter of putting on an "Apple Week" in the coast cities it was thought advisable to abandon this idea, and to direct our efforts to obtaining a greater and quicker movement of our apples by newspaper advertising.

This advertising was run in the four dailies, and brought direct results which were very encouraging. The advertising kept prominently before the public the great necessity for keeping their money in circulation within our own province by purchasing only "British Columbia produce."

*Extract from a report read at the recent annual convention of the British Columbia Fruit Growers' Association.

Railways' Concessions to Fruit Growers

G. E. McIntosh, Transportation Secretary Fruit Growers' Association of Ontario, Forest, Ont.

PRESENT indications are that the fruit crop in Ontario will be heavy, and we therefore will require every possible assistance from the railways in the marketing of it. The Transportation Department of the Ontario Fruit Growers' Association has been active of late in procuring for the growers throughout the province some local, also general improvements. The following information, therefore, may be of value:

During the seasons of 1914 and 1915 the shipper who loaded vegetables in a car with fruit for points east of Port Arthur, had to either pay the less carload rate on vegetables and the carload rate on the fruit, or pay third class rate, minimum 20,000 pounds, on the fruit and vegetables. Instances were reported, however, where the privilege was allowed, but not by authorized tariff, thus making the shipper liable to prosecution. Complaint was made to the Railway Commission and referred to the Canadian Freight Association. The complaint was favorably considered, and the mixing of fruit and vegetables between stations in Ontario and Quebec and to points in the Maritime Provinces to or from which through class rates are published, is now authorized by a tariff effective March 24th, the following rates applying:

Lots of less than 10,000 lbs., 1st class rates.

Lots of 10,000 lbs. or over, 2nd class rates.

Carloads, minimum 20,000 lbs., 4th class rates.

This service will be a decided advantage, and should open markets for mixed orders.

False Floors.

Under an order of the Board of Railway Commissioners, the railways allow shippers three dollars for the material used in putting in a slatted floor in refrigerator cars not so equipped. This order is now amended by adding thereto a further allowance of 500 pounds from the weight of such cars. During the present season shippers are requested to keep a record of all cars floored, including those for which the authorized

allowance is collected. Such information may be required at a later date.

Because of the heavy production of berries at Vineland and Jordan, the early arrival of the fruit train, and the fact that they have but one outlet for their shipments, a better service was considered an absolute necessity, and we therefore supported an appeal by the local associations before the Railway Commission. The result which follows may in time lead to improved service throughout the district, and we therefore hope the shippers at other points will not look upon the matter as discrimination towards them. It was impossible at the present time, because of the delay of train 97 making connections doubtful, to have the service extended even to St. Catharines, where it would also be beneficial, but our efforts are in the right direction, and partial success should be satisfactory to all.

Order 24976, dated the 15th of May, 1916, provides

(a) That Ottawa shipments be accepted daily, except Sunday, on train 97 from Jordan and Vineland, and when necessary, train 97 be held at Vineland for three minutes, the shippers to help place shipments in car.

(b) That a car be placed at Jordan, daily, except Saturday and Sunday; that shipments for the following points be accepted in such car: Port Hope, Cobourg, Trenton, Belleville, Napanee, Kingston, Gananoque, Brockville, Prescott, Morrisburg, Cornwall, Lancaster and Montreal, said car to be picked up by train 97 and transferred to train 20 at Hamilton and train 18 at Toronto.

(c) That, when necessary, train 18 to be held five minutes at Toronto, or until 8.35 p.m., in the event of No. 20 being late, to enable the transfer of said car.

(d) The service mentioned is to be furnished from July 1st to August 31st.

The decision of the Board will be appreciated by the shippers at the points concerned, because of the great benefit it will be in marketing the berry crop in particular, and I therefore urge the shippers not to abuse the privilege of the pick-up car or train 97, by holding back shipments from the regular fruit train. In other words, every basket that can possibly be loaded on the fruit train should go forward by that train. In order to hold the service for another year, it will probably be necessary to show a good tonnage via the pick-up car at Jordan, and for this reason I also urge the Vineland shippers not to hold back shipments for train 97 at Vineland, which can be loaded into the Jordan car.

Icing Charges.

The railways issued a new tariff on April 11th, to become effective May 15th, increasing the charge for ice from $2.50 to $3.00 per ton, and making a charge for hauling the ice, based on the distance the car travels, ranging from $2.60 per car for 350 miles or less, to $10.90 per car for 1,450 miles. An appeal was made in behalf of the fruit shippers, and on May 3rd the effective dates of the new tariffs were suspended until further notice. Therefore icing charges in effect last season will at least stand until the proposed new charges are considered by the Railway Commission, when you will be duly notified.

Niagara District Notes

F. G. H. Pattison, Winona, Ont.

MAY up to date (May 22) has been characterized by constant rain and uncertain weather. The season is early—indeed much earlier than last year—and there is an abundant bloom on almost every kind of tree fruit. Sunday, May 21, was "Blossom Sunday," and as it was a beautiful day, immense crowds journeyed down to see the fruit country in the beutiful season of bloom. Many came down by electric car, and as many or more by the automobile route.

Early in the month fruit growers had considerable difficulty getting on the land to do their spraying, but as the month went on conditions improved, and nearly all managed to give all their fruit a thorough application.

Birds are peculiarly plentiful this year. Robins, blackbirds, Indigo Buntings (blue birds), song sparrows, wrens, yellow buntings, mourning doves, orioles, etc., are particularly numerous.

A report from Port Dalhousie says "that the fruit growers there have completed both their first and second sprayings. Several students from the O.A.C., Guelph, arrived at the Vineland Experimental Station early in May to spend the summer there acquiring some practical experience."

A report from Beamsville says: "Cherry, plum, peach and pear blossom is very abundant. The Beamsville Preserving Company will get water from the town council at the rate of 6 cents per gallon for the year 1916, and the rentals of the meters will be 10 per cent. of the cost of the meters per annum."

Fruit farm labor is very scarce through the district. Men who would have been available in other years have got more remunerative posts in munition, powder and steel works. Hamilton factories absorb the men from one end of the Peninsula, and St. Catharines factories from the other. Women help for berry picking will be harder to get than ever because husbands and sons are getting good wages either in the factories or the army, and the major part of this pay in 75 per cent. of the cases is coming home to the wives and daughters to take care of. They seem to have plenty of money for all purposes without working.

A conference was recently held at the executive offices of the Canadian Red Cross Society in Toronto to consider the question of putting up fruit for the Canadian hospitals in England and France this season. The executive expressed themselves as greatly pleased with the results of last year's work, and they will, at the first meeting, consider the plans to be adopted for the season. The Canadian Red Cross will largely finance the work this year, receiving such subscriptions as may voluntarily come in for the work.

The permanency of the splendid road along the township line between Clinton and Louth, commenced by the late Mr. M. F. Rittenhouse as a model thoroughfare to Victoria Hall and the Government Experimental Station near the lake, is likely to be maintained. The two townships are contributing together $600, and the Provincial Government $300, to be expended on this piece of road.

Strawberry plants have come through the winter exceptionally well and present a healthy appearance. They are of a fine dark green color, with but few gaps in the rows. Some of the early varieties are blooming freely.

Douglas Gardens

OAKVILLE, ONT.

IRISES.

In order to encourage the planting of Irises in the month of August—the best time for setting out Rhizomatous Irises—we offer a special discount of 20% on all orders for any Irises named in our Planting List, except Japanese Iris and Monspur and Orientalis, received up to the 31st August; and carriage to any part of Canada will be prepaid on all such orders.

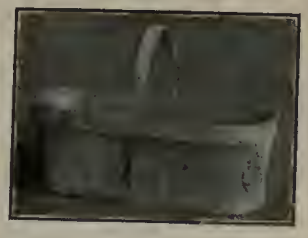
16 vars. of Tall Bearded Iris.
5 vars. Interregna Iris.
6 vars. Pumila Hybrids.

also Florentine Alba and Pseudacorus. Planting list sent on request.

JOHN CAVERS

Peerless Hardwood Climax Fruit Baskets

AND BERRY BOXES



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In the market. Especially suitable for long distance shipping.

Protect your requirements by ordering EARLY

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ST. THOMAS, ONT.

"Fruit Package and Basket Specialists"

QUEENS Reared in Canada From the Best Italian Stock
$1.00 each; Six for $5.00.
P. TEMPLE 438 GLADSTONE AVE. TORONTO, ONT.

ORTHERN BRED ITALIAN QUEENS
Friends, have you E. F. Brood? If so, I have many letters saying that they are great resisters of E.F.B. I have hundreds of queens in Canada. Three band strain bred to right brightness to resist best. Unt. $1.00, choice Sel. Tested $1.50. Plans how to "Introduce Queen and Increase," 25c. List Free. E. E. MOTT, Glenwood, Mich.

QUEENS BY RETURN MAIL
or your money back. Guaranteed purely mated, three banded Italians, northern strain, bred for gentleness, honey gathering and wintering.
Select untested, $1.00 each; 6 for $5.00.
Write for price on large orders.
State Inspector's certificate. Satisfaction guaranteed.
J. M. GINGERICH - KALMA, IOWA, U.S.A.

Northern Bred Italian Queens
of the E. E Mott strain. Untested, 90c; Guaranteed, $1.00 for June. July, unt., 75c; Guaranteed, 90c. Send for list. Safe delivery and satisfaction guaranteed.
EARL W. MOTT - Glenwood, Mich.

FOR SALE
Leather Colored Italian Queens
A few choice breeding queens at $10.00 each, spring delivery. I guarantee these queens to be as good as any imported queen, barring none. If purchaser is not satisfied after one year's trial return queen and I will refund the $10.00.
Warranted purely mated queens $1.00 each or $10.00 dozen. Untested, after July 1st, 75c each or $9.00 a doz.
A few choice cols, of Italian bees in 9 frame hives at $10.00 per col.
Tested Queens $1.50 each.
JOHN A. McKINNON
St. Eugene - - Ontario

Reports from many parts of the province say that the tent and other caterpillars are already becoming numerous, and that unless the early sprayings are carefully attended to they will almost be a worse nuisance than they were last year.

Favorable reports have been received lately as to the condition of peach and other fruit trees in the Leamington district. All varieties of peaches are showing a heavy bloom and have come through the winter without any frost injury. Growers anticipate that the larger portion of the crop will be of the Elberta and New Prolific varieties. The peach growing industry has been reviving in that district the last few years, and there are now nearly as many peach orchards as there were before the great freeze-out about twelve or thirteen years ago. Other fruits also promise well. Both sweet and sour cherries have an abundant bloom, and pears and apples appear to be going to have a large crop, although the acreage devoted to the two latter fruits is not large.

Experiments with sea-weeds in Nova Scotia have shown that these are rich in potash, and possess a considerable quantity of nitrogen and phosphoric acid. Sea-weeds, in their natural state, have long been used by the farmers of Nova Scotia for manurial purposes, and the fact that they rapidly decompose when spread upon the ground seems to enhance their value as a possible commercial fertilizer. The Government is now seeking means to dry and grind the weeds.

Toronto Prices.

Apples in Toronto are pretty well cleaned up by this time. On May 13 some were sold by auction at 75c per barrel, and the buyers found some of these not worth taking away. A good many very poor apples are coming into Toronto lately, but some really good Russets sold at $5 per barrel.

Asparagus has been coming in large quantities into Toronto from Fonthill, the St. Catharines district, and the district east of Hamilton, and it sold at $1.25 to $2 per basket.

Hothouse tomatoes are arriving from Leamington and sold at 22c per lb. for No. 1 and 15c for No. 2. Old beets and parsnips are reported a drug on the market. Canadian lettuce sold at from 20c to 70c per head; green onions, 20c per dozen; radishes, 35c to 40c; Leamington hothouse cucumbers, $1.50 to $2.25 per basket.

Reports received from several quarters of the province indicate that, owing to the lack of labor, apple orchards all over will be more or less neglected this season. The only exceptions are where the returns from the apple orchard form one of the chief sources of income. This will have more tendency than ever to put the small orchards of from three to five acres, adjuncts to farms, out of business. Even in the Niagara district this sort of spirit is likely to prevail in some spots. This should be fought to a standstill. If the quality of the fruit be only kept up, I believe that there are better prospects than for the past two years, and it would be a great pity to jeopardize this by neglect.

Not to Organize.

The organization of the proposed large co-operative company to encompass practically all the present co-operative companies, the dealers, and 90 per cent. of the growers in the district between Hamilton and Jordan, will not be completed during the present fruit season, but prospects seem brighter for its being brought into action for 1917. Some of the dealers previously opposed or lukewarm towards it, are experiencing a change of mind, I am informed, and now feel favorably disposed. If the dealers and growers will only come together on any reasonable basis, the project is almost sure to be a success.

Lake Erie counties report a lot of scale in the older orchards. Apart from that, the general outlook for all classes of fruit is favorable, apple buds giving a better promise than for years.

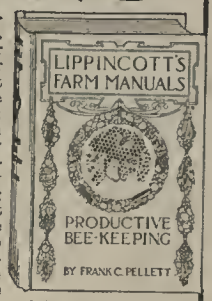
THREE BANDED ITALIAN QUEENS
Bred from imported mothers. Guarantee that all queens will reach you in good condition and to be purely mated.
April 1 to May 1.

Prices.	1	6	12
Untested	$ .75	$ 4.25	$ 8.00
Select Untested	.90	5.00	9.00
Tested	1.25	7.00	13.00
Select Tested	2.00	11.00	20.00

L. L. FOREHAND - Fort Deposit, Ala.

SANDER & SONS
ORCHID GROWERS
The Finest Stock in the World
Catalogue on Application
ST. ALBANS - ENGLAND

BEES
Bees are a money making asset on any farm, bringing annually a far greater return to your table and at the market than they cost in care and expense. Do you know the twentieth century methods? Buy PRODUCTIVE BEE-KEEPING, learn how to make a beginning and how to see it through. It gives the methods found to be the best money-makers by extensive honey producers. The illustrations give in pictorial form all that is needed to explain the text.



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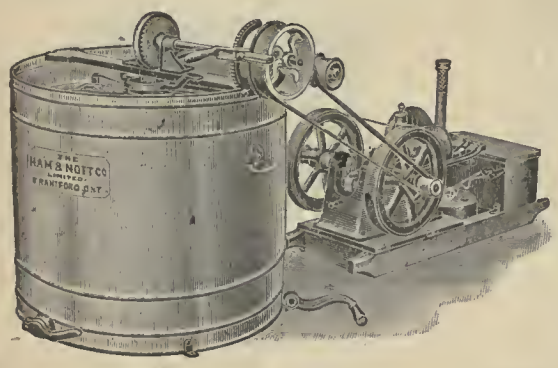

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As the name of this book indicates it is especially adapted to the needs of the practical beekeeper. Not a discussion of scientific principles, but of practical methods.
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Regular price $1.50 postage extra.
We offer this latest book with the American Bee Journal one year, both for $2.00, Canadian postage 15 cents extra.
134 illustrations, attractive cloth binding.
AMERICAN BEE JOURNAL, Hamilton, Illinois

Montreal Fruit Trade

E. H. Wartman, Dominion Fruit Inspector

On March 29 our first full car of berries came to hand from Louisiana in fine order, and selling well, all in pint boxes. Since that date twenty-nine cars have arrived, with few exceptions in good order. In some cases from the time of picking up to date of sale six days elapsed, and still these berries were in fair order. The cars being well iced and weather very cool here prolonged their life.

The transportation, icing and duty on this fruit is a big item. I am of the opinion that the net profits to dealers have been small. There is a fascination in the trade, as when one makes $300 to $400 net on a car it is an encouragement to proceed. But it is quite as easy to lose these amounts, which growers then conclude is their bad luck.

Our supplies of strawberries to-day are from Tennessee in quarts and crates, marked 24 full quarts. One feature is very satisfactory in these berries; the boxes arrive uniformly full. Last year boxes of Ontario berries were better filled than in previous years, yet some packers seemed to begrudge the extra handful, and their boxes were sold as slacks and the shipper was the loser in the end.

Our first mixed car of California fruits arrived May 22 in good order and sold well. It comprised cherries, plums, apricots and peaches. The importer was Geo. Vipond & Co., who have had a long experience in the importation of these fruits.

Reasons for Cooperative Failures

F. G. H. Pattison, Winona, Ont.

Although the principles of cooperation are founded upon a rock, and wherever properly carried out will infallibly lead to success, yet, in both our own and other countries, the march of cooperation to final success is attended by a considerable percentage of wrecks and failures along the road.

Cooperation is a plant which naturally seems to grow more easily in European than in American or Canadian soil, and Great Britain, Ireland, Denmark, Holland, Sweden, and many other European countries have already experienced its manifold benefits for many years.

The United States, however, of recent years has made great progress, over a billion dollars' worth of agricultural products being sold annually by cooperatives in that country, while more than 1,000 cooperative fruit and produce associations are carrying on business there more or less successfully.

In Canada, too, while much of the work is still educative and experimental, cooperation is fast passing beyond the experimental stage, and in the fruit business alone a fair number of cooperatives have attained success, probably the most successful of all being the United Fruit Growers of Nova Scotia. One feature stands out prominently, however, in the history of fruit cooperation in both Canada and the United States, and that is that few communities attain cooperation until necessity compels them; in other words, till they are squeezed into it.

In Ontario some of the fruit growing cooperative associations have failed altogether, and others have attained but a small measure of success from one or more of the following causes:

1. **Lack of the proper co-operative spirit to start with.** This is the chief cause of failure, and therefore it is not advisable to start a cooperative association in any locality until the people are possessed of a certain amount of faith in the principles of cooperation, and are determined to give it a fair trial and not to be frightened by some failures and discouragements during the inception of the business. No great business, whether corporate or private, was ever built up without a number of such failures and discouragements, especially at the start.

Many associations have gone to pieces from lack of a good business manager. In a cooperative very much depends upon the manager. It is essential that he should be a good business man. To obtain such, a fair salary must be paid. No association can attain success if there is **disloyalty to the Association and individual jealousy between the members.** Therefore it is wise to establish a severe penalty for anyone who disposes of his fruit outside of the Association. It is simply impossible for the manager to make a good showing if members sell their best fruit privately, and give only their second class stuff to the Association. A good reputation cannot be built up in this way for the Association, and therefore all the fruit of the indivldual members should be sold through the Association.

Jealousy, too, as to one member getting a little more than another should have no

EUROPEAN FOUL BROOD

is spreading in various parts of the country. The first step in its cure is a vigorous strain of ITALIANS

The Root Strain of Bees have shown . . Themselves to be Highly Resistant . .

While we do not claim their introduction will alone cure European Foul Brood, or that it will not make a start in their colonies, we have reports of where they have, with a little help, fought themselves nearly clean of European Foul Brood which was all around them in black and hybrid colonies.

These queens will be ready for delivery about June 1. Orders will be filled in rotation. Later in the season we will make delivery promptly. PRICES.—Our regular price is $1.50 in June and $1.00 after July 1 for untested queens; but we will club them with Gleanings in Bee Culture for one year and a queen for $1.50, provided we can fill orders for queens when we have a surplus of them. This will probably be July and August.

The A. I. Root Company - - Medina, Ohio

Three Banded and Golden Italian Queens

Untested—$1.00 each; 6 for $5.00; 12 for $9.00.

Selected untested—1 for $1.25; 6 for $7.00; 12 for $14.00.

W. R. STIRLING

Queen Breeder. RIDGETOWN, ONT.

Send for Price List. Cash with Order.

Bees by the Pound, Nuclei or Colonies

We are still booking orders. Northern or southern bred, and bred for business. Hard to excel.

Let us quote you prices on large or small quantities. Our prices are right. We guarantee safe delivery or money refunded.

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Sole Agents for Root's Famous Goods. Also Canadian made goods.

Anything from ¼" cement coated nail to a Power Extracting Outfit.

All kinds of Bee Literature. Ask for Catalogue.

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185 Wright Ave., Toronto, Ont.

QUEENS

Three band Italians, bred for honey and gentleness. From imported stock of medium color.

	1	6	12
Untested	$0.75	$4.25	$ 8.00
Select untested .	1.00	4.75	9.00
Tested	1.50	8.75	17.00

Breeders, $3.00 to $5.00.

Every queen PURELY mated. Safe delivery and perfect satisfaction guaranteed.

N. FOREHAND,

Fort Deposit, - - Ala., U.S.A.

Italian Queens

Three-Banded

Ready April 1, of an exceptionally vigorous and long-lived strain of bees. They are gentle, prolific, and the best of honey gatherers. Untested, $1.00; 3, $2.75; 6, $5.00; 12, $9.00. Tested, $1.25; 6, $6.50; 12, $12.50. Send for my free circular and price list, and see the natural conditions under which my queens are raised. Will book orders now.

JOHN G. MILLER, Corpus Christi, Texas
Corner C St., and Coleman Ave.

QUEENS OF QUALITY
The genuine "QUALITY" kind of dark Italians. Unt., 75c each, $8.00 per doz. Circular free.
J. I. BANKS, DOWELLTOWN, TENN.

BEES FOR SALE
Italian Bees, lb., $2.25; 5 lbs., $10.50; 1-L Frame, $2.00; 2 Fr. Nuc., $3.00; All with Queens. Italian Queens, 75c each; 6 for $4.00. Complete Catalogue Free. Listing Beginner's Outfit.
THE DEROY TAYLOR CO.
Box C., - - NEWARK, N.Y., US.A.

WE STILL MAKE FOUNDATION FOR SALE
We will buy your wax or make it into the best grade of foundation at low rates.
W. A. CHRYSLER & SON
Rt. No. 5, Chatham, Ont.

CARNIOLAN GOLDEN
and Three Banded Italians.
Untested—1, 85c; 5, $4.80.
Tested—1, $1.25; 6, $7.20.
Bees—$1.25 per lb.
Breeding Queens—$4.00.
Nuclei, without queen—1 fr., $1.75; 2 fr., $2.75; 3 fr., $3.50.
D. L. DUTCHER - - Bennington, Mich.

Bees and Queens
Ours are choice stock and Northern Bred; are more desirable for Canadian Beekeepers. Ask for Catalogue B.
Bee Supplies—We sell Root's goods only. Let us quote you prices on what you need. Ask for Catalogue A.
M. H. HUNT & SON
LANSING - - MICHIGAN

Queens of MOORE'S STRAIN of Italians
PRODUCE WORKERS
That fill the super quick
With honey nice and thick.
They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.
Untested queens, $1.00; six, $5.00; 12, $9.00. Select untested, $1.25; six, $6.00; 12, $11.00.
Safe arrival and satisfaction guaranteed.
Circular free.
J. P. MOORE
Queen-breeder. Route 1, MORGAN, KY.

BEEKEEPERS!
We can ship supplies promptly.
Jones' Weed Process Comb Foundation, Improved Model Hives, and all other kinds of Bee Supplies. We can also mail queens within a few hours of receipt of order. Leather colored, hardy stock. Try us.

	1	6	12
Untested	$1.00	$ 5.25	$10.00
Tested	1.50	8.00	15.00
Select tested	2.00	11.00	20.00

Breeding Queens, $5.00 each.
We guarantee safe delivery of all queens. Bees in pound packages a specialty.
More beeswax wanted—cash or exchange.
Catalogue on request.
F. W. JONES
BEDFORD, QUE.

place. It is often difficult to work out a system whereby everyone is treated exactly alike, although the difference is usually small, and if all the members are better off than they were before they adopted co-operation, there should be no kick coming from individuals, for if constant jealousy and bickering prevails, farewell to success. There must be a certain margin of give and take amongst the members.

As a rule, when cooperation is a new thing it is best to start on a small scale with a few members of like mind and aims, uniting together with the determination to stick together through good and bad times and to make the Association a success. A certain sinking of the individuality there must be. Each member should have the good of the Association as his main idea. As success comes, the Association can be enlarged to take other men of like character and aims. Members who will not obey the rules as regards packing properly, spraying, etc., should be dispensed with, for one or two such men will ruin any organization.

The board should keep in touch with and know exactly what the manager is doing at all times. While a certain latitude must be given him, still it is not right for the directors to leave everything to him and be ignorant of what he is doing. Some Associations have been wrecked in this way, the manager speculating with the fruit of the Association.

It is not only a great safeguard, but it is essential to the success of the co-operative that each individual member should take a keen interest in the proceedings of the Association. If the members show slackness, the manager and directors are apt also to become slack, and as much energy and business acumen is needed on their part, so also must the ordinary member back them up by assisting them in every possible way. Any cooperative which is careful to avoid the causes of failure mentioned is practical and certain to be a success.

Cooperation in the fruit business has come to stay, for the simple reason that it is the only means whereby the growers can fight other organizations with whom they have constantly to deal, and thereby obtain all that is coming to them.

Vacant Lot Gardens

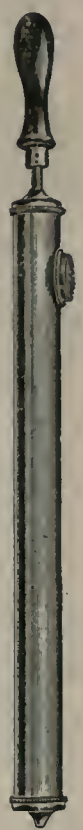
On Saturday, May 13, Controller Thompson officially inaugurated the vacant lot garden work of the Toronto Rotary Club. The ceremony opened with a march past a cinema camera, after which Chairman F. G. Robson, of the vacant lot garden committee, reviewed the good work done last year, and added that already applications had been received for lots from one hundred and ten persons, sixty-four of whom are returned soldiers.

The committee expect that more than $16,000 worth of vegetables will be produced this year.

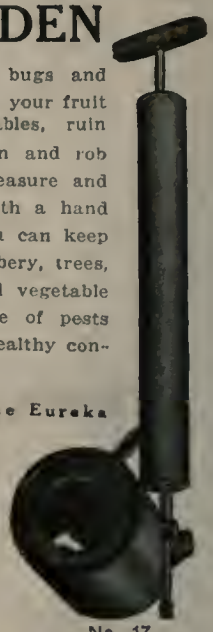
Controller Thompson was then presented with a silver spade, and after a few eloquent remarks, sowed several onion seeds. W. D. McPherson, M.P.P., chairman of the Returned Soldiers' Commission, said that there is nothing that can be done for returned men that will be beyond their merits, and praised the work of the Rotary Club in encouraging the patriotism of production.

Mr. Glossop, who last year won the club's prize for the best garden, has been appointed to instruct the amateur gardeners this year.

SPRAY YOUR GARDEN



Why let bugs and worms spoil your fruit and vegetables, ruin your garden and rob you of pleasure and profit? With a hand sprayer you can keep your shrubbery, trees, flowers and vegetable garden free of pests and in a healthy condition.



No. 17 The Eureka Continuous Sprayer. One quart size. A splendid sprayer giving a mist-like spray. Price. 75c and $1.00.

No. 17

No. 22 Solid Brass Spray Pumps. As per illustration. Lasts a lifetime. Length over all two feet. Each 75c.

GEO. KEITH & SONS
124 KING ST. EAST
Toronto, Ont.

NEW AND RARE SEEDS
Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalogue free.
Perry's Hardy Plant Farm
ENFIELD, MIDDLESEX, ENG.

SKINNER SYSTEM OF IRRIGATION
Control complete. Prevents drought losses. Reduces labor bills. Increases profit. Special Portable Line for $11.75. Send for new Bulletin.
The Skinner Irrigation Co.
217 Water Street Troy, Ohio.

FREE LAND
For the SETTLER in
NEW ONTARIO
Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.
Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.
For full information as to terms, regulations, and settlers rates, write to
H. A. Macdonell
Director of Colonization
Parliament Buildings, TORONTO
HON. G. HOWARD FERGUSON,
Minister of Lands, Forests and Mines.

The Brown Tail Moth in Nova Scotia*

Geo. E. Sanders, Annapolis Royal, N.S.

We have on the whole had two very successful years in Brown Tail Moth control. In 1914 we found 18,154 nests in the province against 24,156 nests the previous year, following the big flight from the New England States, or a decrease of 6,002 nests. In 1915 we found on the whole a big decrease, with increases in a few isolated localities. Only ten inspectors are employed, five by the Dominion and five by the province. They have to cover approximately two million apple trees, so they have little time for other than orchard property, excepting when thorn scrub is known to occur. That they have prevented the Brown Tails from ever doing a dollar's worth of damage up to date in Nova Scotia is something that we can point to with pride, for Nova Scotia is the only locality in which the climate is favorable to Brown Tail Moth development where it has been controlled and prevented from doing damage.

We found in 1915 an interesting outbreak which shows in a striking manner what the Brown Tails would do in Nova Scotia if left uncared for. Just south of the church in Torbrook there is a thorn scrub in a pasture which had never been visited. A few nests were found in apple orchards nearby and an irregular line of nests traced from bush to bush until it led to the heaviest infestation we have yet found in any part of the province. Over 1,500 nests have already been taken from this pasture and there are probably 500 more yet to come. The whole scrub does not cover over thirty acres, the most heavily infested portion about ten acres; there were enough Brown Tails present to eat every green leaf off the central ten acres. The infestation had been running there for four or five years.

A campaign for more spraying has given us good returns. We have our inspectors call on each man whose property is infested with Brown Tails and inform him of the fact, advising him to look for more nests after they have finished his orchard. We also persuade him to spray if possible.

*Extract from an address.

Prairie Farmers Object

Strenuous exception has been taken by the farmers of the prairies to the increased tariff of 50 cents a barrel on apples, recently imposed by the Dominion Parliament. This makes the duty 90 cents a barrel, which they consider too high. At a meeting of the Canadian Council of Agriculture some time ago the following resolution was adopted:

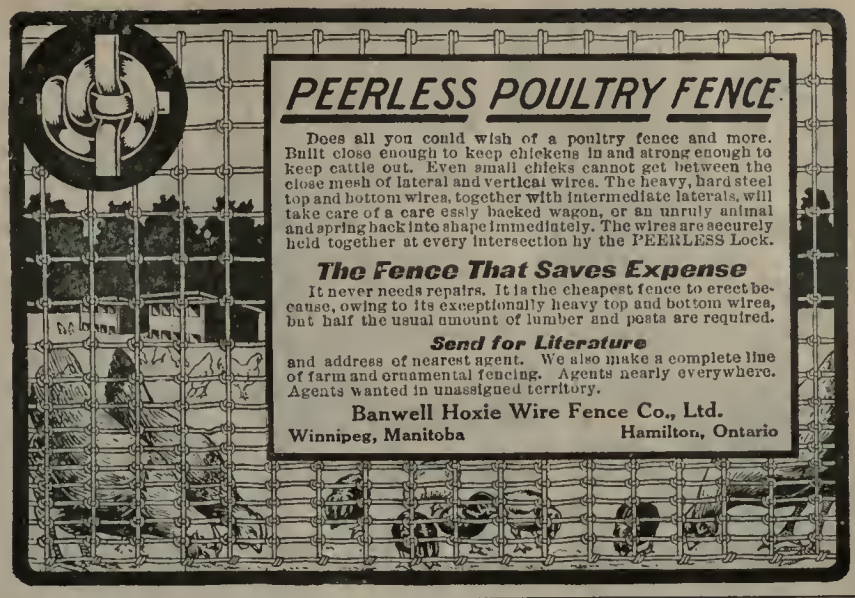
"Whereas, at the request of the British

YOU WILL BE SORRY

If, next fall, you have to pay regular prices for your bulbs, when by ordering them now you could get them for half the money.

Get our import bulb catalogue at once. Orders must be sent in this month.

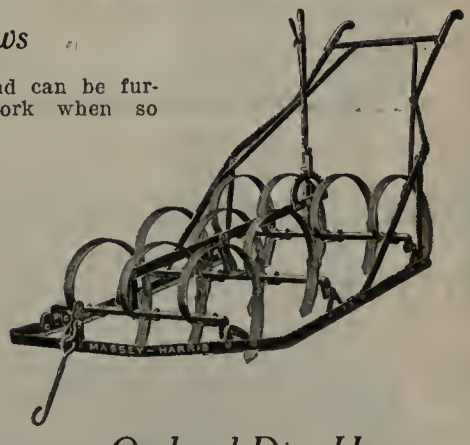
MORGAN'S SUPPLY HOUSE
LONDON, ONT.



Implements for Orchard and Vineyard

Spring Tooth Harrows
10, 15, or 17 Teeth

The 10-Tooth size is in one Section and can be furnished with handles for vineyard work when so ordered.



Spraying Outfits

Small outfits on skids—large outfits on wheels.

Hand and Power Spraying Equipment of all kinds.

Vineyard Plows

Both Walking and Riding Plows, especially built for orchard and vineyard work.

Orchard Disc Harrows

REVERSIBLE

To throw the dirt to or from the trees or vines.

ADJUSTABLE

Gangs can be adjusted as required. Extension can be furnished for working under branches.

Cultivators

A great variety—for cultivating small fruit — for vineyards — for orchards.

Grape and Berry Hoes etc.

Toronto
Montreal
Moncton
Winnipeg
Regina

Massey-Harris
CO., LIMITED

Saskatoon
Yorkton
Swift Current
Calgary
Edmonton

STEELE, BRIGGS'
PROVED THE BEST BY EVERY TEST
"CANADA'S GREATEST SEED HOUSE"
FOR SALE EVERYWHERE IN CANADA
SEEDS

Spray Regularly

NOTHING is quite so vital to the success of your crops as regular spraying. Blight, bugs, etc., are never idle. Use an

OK CANADIAN

ONE-MAN SPRAYER (Wheelbarrow Type)

and you will be certain of a bumper crop. Handy, easy to operate, nothing to get out of order, a thorough sprayer. Can be used for spraying trees, etc. 49-B

Canadian Potato Machinery Co., Ltd.
498 Stone Rd., Galt, Ont.

Full particulars of this outfit, also useful information about spraying solutions, sent FREE. Write for it to-day.

Start a Backyard Garden This Spring

WHY not decide now to have a garden this spring, and prepare your hot beds at once. In another couple of weeks you should have your seeds such as onions, tomatoes, beets, lettuce, cabbage, and of course a number of varieties of flowers for the flower garden all planted.

Hot Bed Sash
3 ft. x 6 ft. 10 inch glass.
Price $1.15
In Clear Red Cypress Unglazed

Hot Bed Sash
8 inch glass
Price $1.20
In Clear Red Cypress Unglazed

BATTS LIMITED
MANUFACTURERS ALSO OF GREENHOUSE BARS AND SASH
366-415 PACIFIC AVENUE - - WEST TORONTO

Columbia fruit growers, the duty on apples has been raised from 40 cents to 90 cents per barrel; whereas, this is an enormously high duty—approximating 100 per cent. ad valorem on the cost of production of apples in Canada, and whereas, the evident purpose of the imposition of this duty is to force the prairie consumer to pay a higher price for apples; therefore, be it resolved that this, the Canadian Council of Agriculture, in meeting, declares this to be an unrighteous attempt to exploit the prairie farmer for the benefit of British Columbia fruitland speculators, fruit growers and middlemen, and we advise the farmers of Alberta, Saskatchewan and Manitoba, that if this becomes law and they are to be taxed in this manner, they pay these taxes into the federal treasury by purchasing imported apples, rather than pay the same duty together with profit thereon to British Columbia land speculators, fruit growers and middlemen."

Inspection of Small Fruits

The Dominion Fruit Division announces that with the opening of the small fruit season in June, special efforts will be made to prevent a repetition of some of the faults in the packing of these fruits which were so evident in 1915, the under-filling of baskets and the packing of immature fruit. It will be the duty of the inspectors to visit the growers at the beginning of the picking season and to instruct them in the methods which it will be necessary for them to adopt in order to avoid prosecution under the Inspection and Sale Act.

Violations of the Act are often committed through ignorance on the part of the grower or on the part of those who have charge of the packing. The inspectors will therefore be instructed to teach these men and to explain to them the necessity of careful supervision of their pickers in the field. The latter are generally young girls and boys who are being paid according to the number of boxes they fill per day, and naturally the tendency is to fill the box regardless of the quality of the fruit. This also will be looked into carefully by the fruit inspectors, and the foreman will be instructed to exercise special care in the packing houses where the boxes are sorted and put into crates.

The Package Difficulty*

R. C. Abbott, Coast Markets Commissioner, Victoria, B.C.

Comments on the package question usually draw severe criticism from the growers who do not yet realize the great necessity of a "standard" package for the different kinds of fruit and the undisputed fact that one of the great features to be considered in "working-up" and "holding a market" is giving to the consumer value for his money.

A great deal of confusion was experienced by the trade and consumers last season on account of the growers using different sizes and different shaped berry crates. While I dislike to mention this fact, I am in duty bound to say, that to the majority of the trade and consumers alike—a crate is a crate irrespective of size, and the prices obtained for the large crates did not warrant their use. It is useless for me to dwell on this subject at length, as most growers are conversant with the situation. I only wish to say this, that as long as the growers continue to use a number of different sized crates for the same kind of berries there will

*Extract from a paper read at the recent annual convention of the British Columbia Fruit Growers' Association.

always be confusion and dissatisfaction over prices, but as soon as we eliminate all the sizes but one,—no matter what size we adopt—then the price will adjust itself accordingly.

The test given the climax basket last season was not a fair one. Growers used the wrong size of basket for certain heavy fruits, and too large a size for certain overripe and soft fruits. Teamsters and expressmen abused the basket in handling and wholesalers' salesmen did all they could to discourage its use. I would advise growers to give more attention to the fruits they ship in this basket, and I would further recommend the use of the six quart and eleven to some limited extent for high grade red colored dessert apples, as I believe the use of a smaller package than the present box for this class of dessert apples would meet with the approval of the consuming public, as at the present they who cannot use a whole box at a time have to buy by the pound and carry home in a paper sack. A retailer who has tried out this basket in this respect claims it is much better than the half or quarter boxes. The quarter apple box, 5¼ x 11 x 9 inches, as used by a fruit stand dealer, did not find a very ready sale for two reasons: first, this box has no handle to it and was not convenient to carry, and second, the dealer used it for a low grade cheap apple and consequently the first cost of the packages brought the price of the apples up too high in price.

It is the intention of your markets commissioner to take up the matter of packages through the press during 1916, and make a special feature of this in order to educate the consumer and the trade as to the size and contents of each kind of fruit package.

Nova Scotia's Production of Apples

J. A. Macdonald, "Hermanville Farm," P. E. Island

The apple industry of Nova Scotia has probably advertised the province abroad more than any other of her varied products. By the exports of apples we are able to show exactly what advance has been made during the last thirty-five years. Dividing this period into seven divisions of five years each, we find the average number of barrels exported during each period to be as follows:

1880-1885	23,920
1885-1890	83,249
1890-1895	118,552
1895-1900	259,200
1900-1905	330,406
1905-1910	482,298
1910-1915	643,074

These figures are significant. It is further estimated by the railway authorities that during the last few years 150,000 barrels per year have been consumed in the province. These might be added to the above to show actual production. When it is considered that other farm products, roots, grain, hay, beef, etc., have not increased for many years this gain is the more noteworthy. In spite of the increased production the good paying figure of $2 to $2.25 average has been well maintained. Greater confidence is felt in the ability of the grower to control insect and fungoid enemies. The coming and going of little scares about San Jose scale and Brown Tail Moth,—which pests are now being regarded by many as blessings in disguise—are inducing a steadiness of faith that man is to have dominion over these enemies and have tended to lead growers to settle down to real business in enlarging their output.

KILL THEM BOTH

The summer enemies of fruit, codling moth and apple scab, may be conquered in one application. The codling moth requires a poison, and the best is Swift's Brand Arsenate of Lead. The apple scab needs a fungicide, and the most efficient is Soluble Sulphur.

For a complete Summer Spray use

ARSENATE of LEAD and SOLUBLE SULPHUR

One drum of Soluble Sulphur, weight 100 lbs., will make 4,000 gallons of Summer Spray. A barrel of mushy, wasteful Lime and Sulphur Solution will only make 1,600 gallons. With Soluble Sulphur there is no loss from leakage; no barrels to return; no loss from spoiling; no clogged nozzles. Don't pay freight on water. Buy Soluble Sulphur in powder form. Buy it by the 100-lb. drum. It is 60 per cent. cheaper than Lime Sulphur. It saves time and money and gives results.

Send for prices and details for Summer Spraying.

NIAGARA BRAND SPRAY CO., Limited

BURLINGTON - ONTARIO

Everything for Spraying. { Soluble Sulphur, Lime Sulphur, Arsenate of Lead, Dust Sprays and Dusters, Hand and Power Pumps, and Accessories.

LOADING OUR LOGS

One of Our Specialties is

THAT GOOD APPLE BARREL

Not made from cull staves the rejections from flour and other stock of various bilges, but cut from absolutely mill run timber with exactly the correct bilge and thickness. Heading mostly basswood which takes a nice brand, is kiln dried and does not warp. Hoops standard. The barrels are all

MADE BY MACHINERY

which insures an even croze and every head fitting. Why be worried with poor barrels causing loss of time? We make sixhoop eight hoop, also six wood and two wire, which is the favorite. If these barrels get wet hoops cannot break. We can ship car loads containing about 330

DELIVERED AT YOUR STATION

We ship thousands of barrels yearly to many large growers, dealers and fruit associations in Western Ontario, besides supplying 80% of the cooperage stock and barrels used in the great Eastern Ontario Apple Belt. Therefore we must give the best value obtainable. Our main plant is one of the

FINEST ON THIS CONTINENT

Write us for prices on cooperage or barrels delivered your station.

"Owing to the uncertainty of labor, we cannot guarantee present prices or prompt delivery except on early business."

TRENTON COOPERAGE MILLS, Limited

TRENTON, ONTARIO.

A Greenhouse to Welcome Winter

There is a wealth of pleasure in a greenhouse when falling leaves and frost in the air herald the approach of Winter, while horticultural work goes on with renewed enthusiasm under the protecting glass.

Why do we speak of winter now, with Spring just arrived? Because a greenhouse for November joys should be under construction without delay. Write for the book of Glass Gardens which explains more about it. Address Dept. B.

GLASS GARDEN BUILDERS LIMITED

201 Church St.
Toronto.

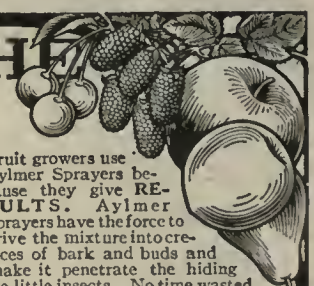
Transportation Bldg., St. James St.
Montreal.

Factory—Georgetown, Ont.

AYLMER SPRAYERS have won Medals and are used by seven Governments

USE THE

AYLMER SPRAYER



Fruit growers use Aylmer Sprayers because they give RESULTS. Aylmer Sprayers have the force to drive the mixture into crevices of bark and buds and make it penetrate the hiding places of the destructive little insects. No time wasted on repairs during the Spraying Season if you get a Sprayer that DOES NOT GET OUT OF ORDER. Any man who has had the exasperating experience of having to stop on account of loose "packing" on the pistons, will be glad to own an Aylmer Sprayer. It is the only Sprayer constructed without troublesome "packing." In the Aylmer, the pistons are made tight by three bronze expanding rings, the same as the pistons in automobile engines. This Sprayer is easy to pump and there is no pressure leakage; every ounce of pressure being turned into spray work. Agitators prevent clogging; nozzles are up-to-date; throw full distance and with full power from a stream to a spray. Every part designed to give perfect service. Prices low. FREE GUIDE TO SPRAY MIXTURES sent on request.

Aylmer Spra yer Outfit D

Fig. 176

Pump complete, 10 ft. hose with couplings attached, 2 Friend Nozzles, 1 Brass Stop Cock, 1 Y, 1 long Iron Extension Rod, without barrel, **$20.00.** Lined Bamboo Extension Rod in place of iron, $2.00 extra; with barrel, $4.00 extra. Shipped prepaid to any station in Ontario.

Aylmer Pump and Scale Co. Ltd.
WATER ST., AYLMER, ONT.

Orchardists are now fully persuaded that commercial fertiliers and cover crops warrant extension without regard to hay land and stock. As their crops have increased they have recognized their ability to handle the greater quantities with as much ease as the smaller and with infinitely greater satisfaction. This largely pertains of course where such crops as 3,000 to 4,000 barrels are harvested when the inspiration and ambition and confidence increases in greater ratio than the business. Men are beginning to realize that fruit growing can be extended as successfully as any other line of industry, and as they separate the profits of the orchard from their other crops they realize the superiority of the apple trees as money makers.

The Profits Earned.

A carefully tabulated statement, which has stood the test of several years, shows the net profits of well-cared for orchards to be about 16 per cent. annually on a valuation of $1,000 per acre. This statement has been fully verified and endorsed by the Fruit Growers' Association. A dozen years ago a $20,000 orchard was considered so only on paper. Five years later a $50,000 orchard was thought impossible. This year some young orchards getting nicely under way, hardly commencing their business career, will pay (or would pay were it not for the war in Europe) better than bank interest on $60,000. Ten years hence a $100,000 proposition with an output of over 10,000 barrels of apples is likely to be a reality in Nova Scotia. The war for a time will, and does, doubtless restrict the expansion of the trade to Europe, which had so greatly improved and expanded in the past five years, but new markets are opening. The American market, which was practically ignored by the Nova Scotians in the piping times of peace, is now relied on to take a large quantity of the product. Portland and Boston are good markets which may be relied on.

Intensive Planting.

The system of intensive planting is every year becoming more popular than the old way of forty permanent trees to the acre. Fillers can be transplanted with not more than one or two years check, and no longer need the beginner in orcharding worry over the purchase or the clearing up and the fencing and cultivation of twenty acres of land in order to plant 1,000 trees. These trees can be easily planted on two to four acres if desired and the encumbrance of larger areas to contain them permanently may be considered later when time and means are smaller factors. With early-bearing varieties as "fillers" applied to this system the ambition of any orchardist to harvest 1,000 or 2,000 barrels may be realized in eight to ten years from the start instead of waiting a lifetime.

For these and other reasons it is plain that Nova Scotia's apple output must naturally increase in greater ratio than during the past twenty years, which ratio has been practically constant. Shortly before the outbreak of the war a large grower in the Annapolis Valley and well-known statistican, stated that during the next twenty-five years, besides local consumption, Nova Scotia will be shipping, 1915-20, 1,085,170 barrels; 1920-25, 1,627,755 barrels; 1925-30, 2,441,632 barrels, and that beyond this latter period it will go beyond the three million mark. We all hope and trust these ambitious figures will be realized.

Tell advertisers that you saw their advertisement in The Canadian Horticulturist.

Advertising the Fruit Crop*

Ed. D. Reed, Hamilton Advertisers' Agency Ltd., Hamilton, Ont.

YOU have heard of the results of advertising the great apple crop of 1914. Herewith I present a few reports as to results that attended the advertising of Niagara Peninsula grown fruits last year, which I have gathered from Lethbridge and Calgary in the west to Halifax in the east.

The reports are extracts from letters from express agents, fruit dealers, railroads and grocers. These reports are from the men who actually passed the fruit from your orchards into the hands of the housewife; who was encouraged by our advertising to "put them up," to be later "put down" by the balance of the family.

In London, Ontario, eight carloads of peaches were sold in one day. This was more than had been sold in any whole week before in London.

At Berlin, more fruit was sold by threefold and at better prices than for years past.

The express agents and grocers of Acton declare emphatically that they handled more fruit than ever before and a much larger aggregate of peaches and grapes from the Niagara District.

T. B. Cramp, Orillia, Ont., writes: "The sale of fruit in Orillia was simply enormous. I never saw so much fruit sold in one season. I usually sell a large quantity, but in 1915, sales were more than double any previous year.

From Owen Sound we learn that 1915 was one of the biggest, if not the biggest, season for fruit known. In spite of the general depression which affected the country, including Owen Sound, the people purchased as much fruit, and in many cases more, than usual, and this in the face of a very poor year and in the midst of a terrible war.

Voice in Audience—"I don't think those little bulletins telling the housewife when raspberries and plums and peaches become ripe are any good." Mr. Reed: I will read a few letters on that point. Here is one, "We found the housewife bought more intelligently and at the proper time to get the best fruits. In former years the women used to call for fruit weeks after it was all off the market." Another says, "I usually booked orders ahead with many customers by calling their attention to the fruit bulletins." This, gentlemen, is evidence enough, I hope, that advertising pays.

The Same Voice—"But I believe in advertising, but not in such small space."

Mr. Reed: "Right you are and I agree with you. Those small bulletins caught the eye of only such women as made a habit of reading their local news columns. If we

*A report of an address delivered at a meeting in February of the Niagara Peninsula Fruit Growers' Association. The association has decided to continue advertising along the same lines this year.

This KNAPSACK **Spramotor**

It isnt a SPRAMOTOR unless we made it.

Complete with Attachments $18.00

The illustration gives you a pretty clear idea of the Knapsack SPRAMOTOR in action. It is made entirely of brass, except the shoulder straps, which are of wide, heavy grained leather, and the handle, which is of spring steel. It is light, strong and durable. The tank or Knapsack—made of cold-rolled 16-ounce polished brass—has a capacity of 5 gallons. The discharge and air chamber tubes are pivoted on the top of the tank on a single bolt, thus permitting the SPRAMOTOR to be swung from right to left at will, allowing you to change hands instantly while at work. All the labor is done on the down stroke. Operates so simply that any one can master it in a few minutes. Everything is so clearly and plainly told in our book of instructions that you can go ahead and work it the same day you receive it. Drop a card for booklet.

Made in Canada. No duty to pay.

SPRAMOTOR WORKS, - 2714 King St., London, Canada

University Fudge

The Lantic Sugar Cook Book gives the recipe for this and many other new sweets. Send a red ball trade-mark, cut from a Lantic package, for a free copy.

Lantic Sugar

"The All-Purpose Sugar"

will please you by its purity, convenience and high sweetening power.

The Sugar with the red ball trade-mark

Packed in 100-lb. Bags

For book, address

Atlantic Sugar Refineries, Ltd.

Power Building, MONTREAL 11

ADVERTISERS like to know if you are buying goods through their advertising. When you write don't forget to tell them you saw their advertisement in The Canadian Horticulturist.

WE ARE PROTECTED BY THE PRODUCE REPORTER CO'S SYSTEM — CREDIT BOOK — CHICAGO — ALL CONTRACTS GOVERNED BY N.Y.P.A. TRADING RULES AND GRADES

Branch Warehouses: Sudbury, North Bay, Cobalt, Cochrane and Porcupine

Send for Shipping Stamp

Fruit and Vegetables Solicited

WE GET YOU BEST PRICES

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto Market, we have established branch warehouses with competent men in charge at Sudbury, North Bay, Cobalt, Cochrane and Porcupine. In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies

INTERNATIONAL APPLE SHIPPERS ASSOCIATION

H. PETERS

88 Front St. East, Toronto

CLASSIFIED ADVERTISEMENTS

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign, or single letter to count as one word, minimum cost 30c., strictly cash in advance.

REAL ESTATE

ALL KINDS OF FARMS—Fruit farms a specialty. Write for Catalogue. W. B. Calder, Grimsby.

FARMS—All kinds, all sizes, for sale, fruit, stock, grain and dairy farms. Let me know what you are looking for. H. W. Dawson, Brampton, Ont.

SEEDS.

YOU WANT "Reliable Seeds," get our Seed Price List and Save Money. Morgan's Supply House, London.

SPRAYING.

SAVE MONEY—Get our Spraying and Garden Supply Catalog. Morgan's Supply House, London.

BEES.

CARNIOLAN, GOLDEN AND THREE BANDED ITALIANS. Bees by the pound, Nuclei. Ready to go April 1st. Write for price list. C. B. Bankston, Buffalo, Leon Co., Texas.

BEES and QUEENS from my New Jersey Apiary. Price list free. J. H. M. Cook, 70 Cortland St., New York City.

ITALIAN BEES AND QUEENS as advertised on page 160. Catalogue free. Deroy Taylor Co., Newark, N.Y.

BEST THREE BANDED QUEENS at lowest prices, after June 1. Also Bees by the pound. Satisfaction guaranteed. Send for circular. J. H. Haughey, Berrien Springs, Mich.

BEES—Per pound, $2.15; per frame, $2.35; queen, $1.00. Comb foundation, light brood or extracting, per pound, 60c. Langstroth hives and frames, painted and empty (new), $1.60 each. Address Aurora Apiary, Aurora, Ont.

FOR SALE—Hardy, healthy honey bees from diseaseless district. Nuclei and full colonies at low prices. Good shipping facilities to all Canadian points, May to October. The Rahn Bee & Honey Co., Ltd., Haileybury, Ontario.

WANTED—A few English Queens (BLACK). Wm. Reid, White Valley, Vernon, B.C.

GOLDEN ITALIAN QUEENS—Bred from a strain of great honey gatherers. Gentle and prolific. Untested—1, 75c; 6, $4.25; 12, $8.00; 50, $32.50; 100, $60.00. All orders promptly filled and safe arrival guaranteed. L. J. Pfeiffer, R.F.D. No. 15, Los Gatos, Cal., U.S.A.

LET US send you price list and descriptive circular of our bees and queens, and if you will tell us what size and how many packages you may want we will tell what the Express will amount to. R. V. & M. C. Stearns, Brady, Texas.

FOR SALE—Italian queens from the best honey gathering strains — untested queen, 75c; 6, $4.25; 12, $8.00; tested queens, 1, $1.25; 6, $7.00; 12, $12.00. Robert B. Spicer, Wharton, N.J.

TRY US—Pure Italian Queens, untested, 60c; 6, $3.50; 12, $6.50. Whitt & Lovejoy, Sinking Creek Apiaries, Gimlet, Ky.

BEE SUPPLIES.

BEEKEEPERS—Please write for our Catalog. Morgan's Supply House, London.

1,000 GUMMED HONEY LABELS, two colors, any wording, for $1.30. Catalogue free. Eastern Label Co., Clintonville, Conn.

A DAUGHTER of one of Dr. Miller's best honey queens, and the Beekeeper's Review for 1916 for only $2.00. A daughter of one of the very best honey-getting queens selected from 1,100 colonies worked for extracted honey, from the yards of E. D. Townsend & Sons, and the Review for 1916 for only $1.75. The queens will be mailed in June direct from our breeders in the South. A rare buy. Beekeepers' Review, North Star, Mich., U.S.A.

could have used larger space, we could have supplied those advertising features which compel or impel the attention of women, and we would have oversold your whole Niagara Peninsula crop at even better prices than those obtained.

The little fruit bulletins were good in their way. They led up to the final large crop—peaches. At the last moment the Dominion Government, through the fruit commissioner, Mr. D. Johnson, gave $5,000, with which to get real action. And believe me gentlemen, that the display advertising which this government money purchased really saved the day. If we had not had this last extra display advertising you would have been as badly off as the American speaker indicated when he said that had it not been for the tariff wall, last year the New Yorkers would have "buried you in eight feet of peaches." Had it not been for the last seven weeks of large display advertising, you would have had a two-foot layer of peaches on your land to-day. (Applause).

I have been accumulating, for the benefit of your committee, data on the retail prices of fruits as sold in the stores throughout the Dominion. I know the prices at which this fruit was offered by the dealers, and year for year you must admit that you sold peaches in 1915 at better prices than 1914 or 1913 or even 1912. And gentlemen I believe that advertising did it.

Apple Orchards Decreasing

Geo. E. Sanders, Annapolis Royal, N.S.

In talking over the outlook for the apple business with different people, and reading what I could with a bearing on the future, I have obtained several interesting bits of information. Prof. T. G. Bunting, of Macdonald College, tells me that he has investigated and finds that there are fewer apple trees east of the Mississippi or in eastern America to-day than there were twenty years ago. Mr. F. S. Walsh, Agriculturist to the New York Central Railway, whose business it is to know such things for his employers, tells me that there are fewer apple trees in New York State to-day than in 1891.

Several factors explain this falling off in orchards in eastern America. The most important is the San Jose Scale, which has killed thousands of acres of apple and peach trees in Illinois, Indiana, Ohio, Virginia, New York, Connecticut and Massachusetts. In addition to killing off the uncared for orchards the San Jose Scale is making it almost impossible to grow a young orchard in infested districts as the profits from apples in the middle states are not large enough to justify the extra care necessary. The fact that peaches are a much more profitable crop than apples in some sections has caused a portion of the reduction. Lack of profit and general neglect have also been the cause of a large amount of the decrease in Massachusetts, Maine, New Hampshire and other states.

British Columbia

The work of the inspection of imported fruit, nursery stock, vegetables, trees and plants, and field and orchard inspection work has heretofore been administered by the Fruit Inspection Branch of the Department of Agriculture, under the direction of the late Thomas Cunningham, Inspector of Fruit Pests. A reorganization of this work has been effected, and all field inspection work will hereafter be under the direction and control of the Horticultural Branch of the Department.

R. M. Winslow, B.S.A., Provincial Horticulturist, has been gazetted as Provincial Horticulturist and Inspector of Fruit Pests. W. H. Lyne has been gazetted Inspector of Imported Fruit and Nursery Stock.

The duties of the inspector of imported fruit and nursery stock will be confined to the work now carried on at our Provincial Inspection and Fumigating Station at Vancouver, by enforcing the provisions of the provincial regulations, and also those issued under the Dominion Destructive Insect and Pest Act. The inspection of imported fruit, vegetables, nursery stock, grains, rice, corn, etc., at all ports of entry into the province, will also be undertaken by this branch of the Department.

Items of Interest

The Dominion Fruit Division announces that there is every prospect of a satisfactory production of large fruits in Canada next fall. Trees have come through the winter in fine condition, and from all parts of the Dominion reports indicate that with favorable weather the crop should be well above the average. Frost is reported to have injured the peach and sweet cherry buds in British Columbia and in some fruit districts of the Northwestern States. No frost injury is reported in Ontario or Eastern Canada.

So many new discoveries of new facts by plant investigators, shortcuts and "wrinkles" worked out by plant propagators, and nursery, greenhouse and garden methods simplified or made more effective, have made books hitherto available on plant propagation out of date. A new book by Professor Kains will appeal with equal force to the amateur, the professional propagator, and the teacher in agricultural colleges and schools. The table of contents includes: An introduction on general principles, germination, seed testing, potting, layerage, bottom heat, cuttage, classes of cuttings, graftage, and theories and laws, Daniel's experiments in graftage, tree stocks and scion handling, grafting waxes and wound dressing, methods of grafting considered individually, budding methods, nursery management, and laws affecting nursery stock. Illustrated, 5½ x 7½ inches, 342 pages. Cloth. Price, net, $1.50. Orange Judd Company, New York.

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The Dust Spray Under Test in Ontario

THE reports of the success which has attended the use of the "dust spray" in New York State resulted, this year, in a number of these machines being introduced into Ontario. One is under test also by the Dominion Government in Nova Scotia. While it is still too early for it to be determined how effective this spray has proved the following reports on the use of two of these machines should prove of interest.

Prof. L. Caesar, provincial entomologist, who has been testing these machines for the Ontario Department of Agriculture, writes: It would be unwise at present to express any opinion on the effectiveness of the so-called "dust spray" as a means of controlling insect pests and fungus diseases of orchards. There are at least half a dozen men in Ontario experimenting with this new method of spraying this year. Mr. W. F. Kydd and I are also each conducting a series of experiments. The season already shows that fungus diseases will be very bad in unsprayed orchards in at least a considerable part of the province and probably in all of it, thus affording a good opportunity to test the merits of this new method of spraying. I, therefore, hope to have much reliable data available for a report at the Fruit Growers' Convention next autumn. There are a few things that we may briefly refer to now and that may be interesting:

(1) The dust spray is certainly much more rapid for large trees than the old method. I have not got my notes by me as I write, but I am safe in saying that I can do about as many acres of large trees in two hours with one of the large dusting outfits as I can do with the best power sprayer for liquid sprays in two days, that is, if the work is done with equal thoroughness in each case. Of course on small trees there is not nearly so great an advantage in time saving as on large ones, though there is considerable there too.

(2) The dust machine requires only two men to operate it, compared with three for the liquid spray outfits.

(3) The fear that some held of danger to the operator from inhaling the dust is not justified, unless, of course, one is foolish enough to try to spray against the wind. Goggles should be used, automobile goggles being, in my opinion, the best kind, as they enclose the eyes better than any others I have seen.

(4) The spraying should preferably, in most cases at least, be done on a calm day and at right angles to any little breeze there may be, so that one may go up one side of the row and down the other, finishing everything up as he goes. If calm weather does not occur when wanted it is, in my opinion, better not to wait but to spray with the wind and do the other side either when the wind changes or the first calm morning or evening that occurs. It is impossible to spray very high trees in a strong wind.

(5) It requires nearly as much care to do a really thorough job with the dust spray as with the liquid. The very best man on the place should do the work, and he will find that he has to use both his brains and his hands as

More than ever female help has had to be used this year in gathering the strawberry crop. A scene in the Niagara District. (Photo sent by F. S. Reeves.)

"Dusting" in the orchard of W. H. Gibson, Newcastle, Ont. (Photo by R. S. Duncan.)

quickly as possible to cover large trees properly and not waste the material.

(6) So far as I can judge the net cost of the dust spray will not be greater on large trees than that of the liquid spray. The materials cost a great deal more but the time and labor required are much less.

(7) In a wet season like this the dust spray, if it is effective, would be a great boon because the outfit is light and horses could easily take it through any orchard that they could walk through. Moreover, the time required to do an orchard is so short that one could easily, no matter what the weather is, find sufficiently long dry spells to do the spraying.

Every fruit grower will wish for the success of this new method of spraying and will be disappointed if it should as a result of the season's work prove to be unsatisfactory. I hope that if it is found efficient as a controller of fungus diseases a fairly good dust preparation for the dormant spray can be evolved in a year or two.

Dust Sprayer Tested in Mr. Gibson's Orchard

R. S. Duncan, B.S.A., Port Hope, Ont.

RECENTLY I had the privilege of inspecting a dust sprayer at work in the orchard of Mr W. H. Gibson, of Newcastle, Ontario, Durham county.

The duster proper appears to be a simple machine. It consists of a large hopper, air tight, which will hold one hundred and fifty pounds of the dust spray material; a special feed device equipped with revolving brushes which force the material through a fine screen and finally into the air chamber at the bottom of the hopper, and a high speed fan which produces a forced current of air directed through the bottom of the hopper. This picks up the dust and carries it through the discharge pipe where it bursts into a dense smoke-like cloud which practically covers the apple tree.

The accompanying illustrations show the duster at work with Mr. W. H. Gibson directing the spray. The dusting machine cost $150.00 f.o.b. Newcastle, without engine or trucks. Mr. Gibson coupled one of his gasoline engines to the machine and placed the outfit on a set of old trucks.

Material Used.

The material used for spraying is known as "Poison Dust Sulphur," which consists of eighty-five per cent. of very finely ground sulphur and fifteen per cent. of dry powdered arsenate of lead. The quantity recommended to be used per tree is determined by the size and shape of the trees, and also by the thoroughness of the application. This varies from one to two pounds a tree for each application. This material was purchased in bags with the analysis stamped on the outside at a cost of six and a half cents a pound f.o.b. Burlington. From personal observation it was evident that a great waste of material would occur in a very high wind, and that for best results spraying on a calm day would be advisable.

Mr. Gibson was spraying trees fifteen years of age at the time of inspection, and the horses walked right along. The outlet pipe or blower was handled in a vertical or up and down motion which distributed the cloud of dust over the trees. In this fashion it is claimed that forty acres can be sprayed in one day. Whether this can be accomplished by actual practice remains yet to be demonstrated.

When to Spray.

The time of application of dust mixtures does not differ from the time of application of liquid sprays. They should be applied for the second and third sprayings when pink is beginning to show in the blossoms and after the blossoms have fallen. The claim is made that both insects and fungi can be controlled if spraying is done thoroughly.

This dust spray, however, is of no value for the control of oyster shell bark louse and san jose scale on the dormant wood. The liquid spray will still have to be used for this application.

The chief advantage in spraying with the dust material is the saving in time and labor, especially where a grower has a large acreage to spray. The cost of the materials, however, is much greater, which, perhaps, would be offset by other factors mentioned.

As to the efficacy of the dust spray I would not at present venture an opinion. This is being tried out in an experimental way this season by Mr. Gibson, and by the Department of Agriculture under the direction of Prof. L. Caesar, Provincial Entomologist. Should scab and insects be controlled effectively the dust spray will prove a boon to the large apple grower.

Leaf Curl Disease of Peach

The cool, moist weather this spring has been conducive to the spread of the leaf curl disease of the peach. Because of this the Ohio Agricultural Station has had numerous complaints, more especially from northern Ohio, of the curling, yellowing and dropping of leaves of peach trees, and of the threatened defoliation of the trees. In consequence it has issued a circular explaining certain varieties of peaches, especially Elberta, Lemon Free and others that are very susceptible. This is caused by the leaf-curl fungus, which lives over as threads of the fungus in the buds, though we do not have leaf curl outbreaks of a serious character every season.

The survival of the disease in the buds calls for treatment in the early spring before the fungus has attacked the leaves. Dormant strength of the lime-sulphur sprays, or of standard Bordeaux mixture, or combinations of the two, applied in spring as the buds

are swelling, or about two weeks before blossoming, are effective—many times more so in fact than later applications. The scale control strength of lime-sulphur as a dormant spray will control leaf curl at the same time. It is scarcely possible to do more than check a little secondary leaf infection at this time.

The consequences of the loss of leaves may be rather serious when the loss is excessive. The most apparent results are dropping of the fruit, with general reduction of the vigor of the diseased trees. Commonly the diseased trees form new leaves, in fact ripen fruit buds, as well as the reduced crop of fruit.

It seems probable that as an immediate measure of relief (date, June 8) some good will come from spraying the peach trees with the self-boiled lime-sulphur spray mixture, making two applications at intervals of two or three weeks. No strength of commercial lime-sulphur concentrate or of home-boiled concentrate is safe to apply on peach trees in foliage. Self-boiled lime sulphur is made at the rate of ten pounds stone lime, ten pounds flowers of sulphur, to fifty gallons. Peach growers are warned that the real measures for leaf curl prevention are to be used in the spring before the blossoms open, and that tardy and ineffective treatments are rarely satisfactory.

Marketing Tender Fruits

C. W. Baxter, Dominion Fruit Division, Ottawa

THERE is no product of the soil or manufactured article over which the producer, shipper or manufacturer exercises so little control in marketing as in the marketing of tender fruits. This may, at first thought, appear to be a drastic statement, but let the fruit grower try to enumerate the commodities which he must purchase where the price is not definitely stated by the merchant and he will find that they are few, if any. In fact, for many commodities, the price asked by the retail merchant, is fixed by the producer or manufacturer.

To make a direct comparison between staple products and tender fruits would be unfair because the very perishable nature of the latter makes this impossible. Nevertheless, there are certain fundamental principles lacking in our present marketing methods which, if applied, would eliminate much of the "gambling" element, which is very evident, and would put the fruit industry on a more solid business basis.

In a season of short crops it does not require any great salesmanship ability to market the fruit, the demand being greater than the supply. In a year of big crops, the usual method is to sell all possible on an f.o.b. basis, and the balance is consigned to the various markets without control. In other words, the producer hauls the product of his hard work to the shipping station and "lets go"; he "takes a chance."

Scarcely a season passes without a public outburst of condemnation of the middleman; his name has been synonymous with the "increase in the cost of living." We have heard and read a lot during the past few years about marketing direct from "producer to consumer" and the elimination of the middleman. This may be desirable, but it is not practical. The middlemen are the distributors, and whether or not we are satisfied with their methods of distribution and the toll they exact, we must have distributors. If it were possible and desirable to eliminate the army of distributors now employed in marketing tender fruits, others would have to be substituted. To market tender fruits, we must have distributors, and the bigger the army of distributors the wider will be the distribution, greater will be the consumption, and better will be the returns to the grower or shipper.

The fruit grower or shipper cannot do without the distributors; they are essential; therefore it should be the business of the fruit growers and shippers or their representatives to keep in close touch with the distributors. In order to emphasize this fact, a brief review of the methods employed by an Old Country tea firm, some years ago, might be of value. This firm sold package teas, and in order to add "distinction" to their goods, confined their sales to one or two stores in each city, stores which catered to what is termed the "high class trade." Finally realizing that to limit the number of distributors was to limit the sale of their goods, they changed their method and placed the distribution of their goods in the hands of the wholesalers, fixing the minimum quantity of sale to one case. The result was a tremendous increase in sales, but they were still limited, owing to the minimum quantity of one case being too great for a large portion of small distributors. These restrictions were removed, with the result that there is scarcely a store, big or small, who are not selling this firm's goods to-day, and the total sales have been tremendously increased.

Other Agencies Used.

The producer or manufacturer, in many cases such as this, does not depend entirely on the efforts of the wholesaler to sell to the retailer. They have their own representatives constantly going the rounds of the retailers, talking up and soliciting orders for their goods which they turn over to the wholesaler. The producer or manufacturer does not depend entirely on the retailer's efforts to sell to the consumer; he makes use of advertising mediums of various kinds to create the demand. In this way the producer or manufacturer has absolute control of his product from production to consumer through the established trade channels. He first creates the demand

An idea of the character of the spray, driven by this "dusting" machine in the orchard of W. H. Gibson, Newcastle, Ont., may here be obtained. (Photo by R. S. Duncan.)

Four acres of raspberries on the fruit farm of F. Bell & Sons, Burlington, Ont.

for his goods, establishes the price at which the goods must be sold by the wholesaler to the retailer, and by the retailer to the consumer, and never fails to protect the interests of all distributors who handle their product.

Now, this may sound like a "combine," but it is not. It is a method whereby the interests of the consumer, the producer, and the distributor are protected. The fixed price to the consumer is based on the cost of production; the manufacturers and distributors are assured a fair margin of profit, and the speculative or gambling element has been removed.

Although this method of control of sale of staple products has been employed in a measure to market citrus fruits, it would be a much more difficult matter to market the tender fruits of Ontario in the same way. To fix the price to the consumer would be practically an impossibility.

If, then, we must make use of the already established trade channels for the distribution of our fruit, what are we as fruit growers doing to enlist the hearty, sympathetic co-operation of the distributors? What are we doing to encourage the distributor to increase his sales of fruit?

It is not encouraging to the distributor, who buys crates of strawberries, to find that the bottom rows contain boxes which are only half filled with green or over-ripe berries, or it is necessary for him to use the contents of six boxes in each crate to fill the remaining eighteen boxes, in order to make them saleable.

It is not encouraging to the distributor to find that the baskets of peaches, tomatoes or apples he bought had but one good layer of fruit, and that on the top.

It is not encouraging to the distributor to find that what he purchased for Green Gages were immature green Lombards.

It is not encouraging to the distributor or the consumer to find that the baskets of grapes they bought were immature and practically worthless. Many such were marketed last season.

It is not encouraging to the distributor to find that the car of fruit which he purchased f.o.b. must compete with one or more cars which the same shipper from whom he bought consigned (without control) to his competitor.

It is not encouraging to the wholesale distributor to find, after he has bought and received a car of fruit, that the same shipper has sold to the retail distributor in his own district.

These are not rare occurrences, and although the percentage of the whole marketed in this way may not be very great, nevertheless the quantity is sufficient to stamp the business as unreliable.

Has the distributor been exacting an excessive toll from the tender fruit grower? Our present unorganized methods of marketing make it possible.

Has the tender fruit grower been contributing to the cost of marketing some manufacturer's staple product? If it costs the distributor 17% to 19% to do business, and if he is selling some staple commodities at an advance of 10%, the difference must be made up on other commodities if the distributor is going to continue business. Do not our fruit-marketing methods make this possible?

How can these difficulties be overcome? I suppose that if "cooperation" was not here mentioned, one would think the writer had missed the mark, but the term "cooperative" has been used to describe so many different methods of operations that to-day it is hardly recognizable in its true sense.

We may call it cooperation, amalgamation, joint stock company, a reciprocal marketing organization, but by whatever name it may be called it means that fruit growers must be organized at least to the extent of centralizing and controlling the consigned shipments of tender fruits. Just as long as the shipper indiscriminately consigns his fruit, just so long will we have "glutted" and "overstocked" markets, with unsatisfactory returns.

To some of the shippers, no doubt, the problem of marketing tender fruit has been solved, but they are a very small percentage of the whole. To the great majority, the marketing problem is one in which they are very keenly interested. To overcome the several difficulties now attendant on our present marketing methods would be an individual impossibility; the cost to the individual grower or shipper would be prohibitive and out of all proportion to the value of his crop. When growers and shippers more fully realize what it means to control their product from point of production to consumer through the already established trade channels, eliminating the unnecessary middlemen, then our present methods of indiscriminate consigning and marketing will be done away with.

Seasonable Reminders

Trees which grow late in the summer and have not thoroughly ripened wood are very liable to be injured by winter, particularly in parts of Canada where the season is relatively short. It is important, therefore, to stop cultivation as early as possible without danger of the fruit suffering from drought. The time of stopping cultivation will vary from the latter part of June in places having the shortest summers to the middle of July where seasons are long. It is desirable for many reasons, as soon as cultivation ceases, to sow seed for a cover crop, and among the best plants for this purpose are the clovers and vetches, although rape, millet, buckwheat, and other plants all have their value.

Vegetables.

As soon as the cutting season is over, the asparagus bed should receive a good top dressing of barnyard manure. Do not wait until autumn, as an application then will not benefit the next year's crop. Keep the celery plants well covered with bordeaux mixture to prevent the plants becoming diseased. Save as much of your own vegetable seed as possible. Good seed may be scarce in 1917.

If the summer is wet, favoring the development of apple scab, spraying with lime sulphur or bordeaux mixture will be found desirable as, sometimes, a crop which promised to be clean in the early part of the summer, will, unless sprayed, be badly scabbed before harvesting time.

Potatoes.

The potato crop often is very much neglected in Canada. By the middle of summer the tops are badly eaten by bugs, and what foliage is left is hidden by weeds. Large crops will not be obtained under conditions like these. If the soil is kept as moist as possible by thorough cultivation, the tops kept in condition by spraying for the potato beetle and late blight, the grower will be well rewarded for his pains by the much larger crop he will get, unless the season is very unfavorable. The greatest development of tubers takes place when the ground is moist. If the plants can be brought through the month of August without being badly injured, the crop will increase rapidly in the cooler and moister month of September. It was shown in an experiment that there was an increase at the rate of 119 bushels marketable potatoes per acre during the month of September.

Culture of Small Fruits

W. T. Macoun, Dominion Horticulturist, Ottawa

THE care the strawberry plantation receives during the growing season determines to a large extent the kind of crop there will be next season. The more runners that can be placed with hand and trowel, so that the plants will root quickly and be evenly spaced, the better. Very often there are too many plants in one place and not enough in another. Where plants are crowded and much less than six inches apart, the crowns do not develop well and the fruit is liable to be small. It is important to keep the plantation free of weeds and the ground cultivated as long as possible, as late growth, in the case of strawberries, will result in better plants.

Bush Fruits.

Often there is far too much wood left on the bushes of raspberries, currants, and gooseberries for best results. Attention is drawn to this now, as pruning of these can be done, if desired, as soon as the fruiting season is over. Raspberry canes should not be left closer than six inches apart, the dead and weaker ones being removed and the strongest left. Where canes are not covered with soil in winter, the thinning out may be left until spring, when one can tell, before pruning, which canes, if any, have been injured by winter. Bending down the canes and covering the tips with soil, or, where there is little snow, covering the plant entirely, will ensure the canes wintering well.

Gooseberries are difficult to pick at any time, but if the bushes are kept well pruned, picking will be much easier than if there are many branches. Branches older than three years should be cut out. The best fruit is borne on the two- and three-year-old wood, but there should be a few strong new shoots, well distributed, allowed to remain each year. About six fruiting branches with their side shoots will be sufficient. Red currants are pruned somewhat as gooseberries, but a few more fruiting canes may be left. Unlike the red currant, the fruit of black currants is born on the wood made this year, hence severe pruning of the older wood is desirable to ensure strong new wood each year.

Indian girls are used by a number of the fruit growers in the Niagara District as berry pickers. They pick into small baskets which are fastened to them in front by their aprons. The carrier is shown on the ground.

Bees Not Injurious to Fruit

A committee appointed in Italy to study if bees are injurious to fruit has reported. The report states that bees, from their instinets, the conformation, function and movements of their mandibles, as well as from the shape and consistency of the other mouthparts, cannot perforate the skin of fruit, and it is only incidentally that they lick and suck the juice exuding from fruits which have been injured by other natural causes.

The injuries to orchards and vineyards sometimes attributed to bees are due to poultry, wild birds, wind and hail, and most frequently to hornets, wasps, vine-moths, and other insects. The destruction of hornets and wasps is recommended; it is easily effected, because their nests can be found without difficulty.

Bees do not injure grapes or other fruit even indirectly; on the contrary, they are beneficial to them, either by bringing about the cross-pollination of the flowers, and hence the setting of the fruit, or by promoting the dessication of damaged fruits from which they absorb the juice and pulp, thus preventing fermentation and rot extending to sound individuals (this is especially the case with grapes).

The orchards and vineyards frequented by bees give the most constant crops; the hive is a very useful, and sometimes a necessary addition to the orchard.

In the interests of public economy, agriculturists are strongly advised no longer to entertain any suspicion as to the harmfulness of bees, and, wherever possible, to associate apiculture and agricultural enterprise.

It is hoped that in the event of any changes being made in existing agricultural legislation, the statement—already implicitly made—of the inoffensiveness of bees, will be set forth in formal terms, and that the State will encourage the development of apiculture.

Among the annuals in the garden of Mrs. D. L. MacLaurin, Ottawa, Ont. In the background may be seen a pergola which the vines have not had time to cover.

Have a Pergola in Your Garden

A. V. Main, Ottawa

ONE of the most delightful parts of many a garden is the pergola or arbor, or what is often called in the old land the summer house. The pergola, of course, is the popular name. It differs somewhat from the arbor or summer elad house of olden times, inasmueh as they form a continuous archway covered by a variety of climbers whieh make a leafy eanopy and a eosy retreat for rest and quietude.

Some pergolas are anything but deeorative. Before building one it is well to obtain the adviee of a practieal gardener as to its construetion, for the eontraetor or builder has no conception or interest in the after results. See that it has a reasonable height and width, so that you will not have to stoop when using it. If eonneeted with the house like a conservatory, more time is apt to be spent in them. As the Amerieans say, we don't live enough in our gardens. Many pergolas are ereeted by handy amateurs to suit their own spaee, and at a cost of but a few dollars for lumber. In large grounds they should be of a more expensive nature.

The Pergola.

The success of a pergola depends on our ability to clothe it well with a variety of elimbers. No matter how lavishly the structure is built its beauty is barren without its mantle of foliage. A sunny aspect, therefore, is best, for a cool, sunless place is practically useless for climbers, and anything but a healthy resting place.

Perennial borders are a valuable addition to the sides of the pergola. Use such flowers as heleniums, delphiniums, asters and Japanese lilies. The king of elimbers with us is the elimbing rose "Tausendsehon," now in its fifth year. At present it is a mass of bloom. It eompletely eovers the pillars, and for a lasting quality, either eut or on the plant, is unsurpassed in elimbing roses.

Several varieties of elematis are exeellent subjects, also aristiloehia, bittersweet, grape vines, and bignonia radieans. Some of the annual elimbers are good gap fillers, such as eanary ereeper, nasturtiums and eobea. Cultivated grape vines make a good covering for overhead, and stand the winter well without our having to take them down every fall. The wild grape vine is another.

Aim to have some permanent elimber overhead, sueh as those named, that will bud out in May. Keep the pillars and sides for your roses, elematis and elimbers that require winter protection. This is a good time to loeate the position, and to make your plans for a pergola, so that you may put them into effeet in the fall. Pergolas can be built in instalments, one arehway at a time. In the small garden arehways distributed over the pathways at different plaees provide room for a variety of plants and present a beautiful effect.

"My lawn mower is so dull it won't cut anything," said Mr. Crosslots.

"Never mind," replied the nervous neighbor. "You keep running it late at night and early in the morning, as usual, and pretty soon the grass will curl up and die for lack of sleep."

The iris is a rapid growing and very prolific flowering plant that should be grown more than it is. It multiplies very rapidly when set in good soil.

Sending Roses by Post

Few gifts give more pleasure than a box of fresh eut roses sent through the mail. The effect, however, is somewhat spoilt if the roses arrive injured and bruised. Roses intended for sending some distance are best packed in a shallow wooden box deep enough to allow for two layers of flowers. If the wood is very dry moisten it a little; then line the box with soft paper, not eottonwool, and lay each rose in firmly against its fellow. A clean sheet of paper should be placed between the two layers of blooms, and another on the top before closing down. Any spaee may be filled in with newspaper screwed up roughly, but pressed fairly firm into the vacancy.

The flowers should be eut on good long stems—six inches is not too long—and they should be eut as young and as solid as possible, and stood in water up to their necks for a time before being packed. They will still be developing inside, although placed close together. On arrival they should be freshly eut at the base and allowed to float in a bueket of water, when they will soon freshen up.

Fighting the Insects

The method of fighting garden pests by means of a paris green mixture applied through a watering can is giving way in many gardens to the use of an inexpensive knapsack sprayer which is much more convenient and effective. The spraying material and the water are plaeed in a small barrel or tank, upon which a pump is attached, and by merely raising and lowering the handle the mixture is mechanically agitated and simultaneously foreed through the nozzles in a vapor-like mist. The use of a knapsack sprayer effects an economy in the material used as the mixture is not merely allowed to fall on the foliage and blossoms, but is driven into the innermost leaves with a preeision that tends to ensure a reliable job. The work is completed so effectively and thoroughly that the plants do receive benefit even if rain falls soon after the actual spraying.

A Knapsack Sprayer in Use.

Cultivating, Watering and Succession for the Home Garden

Geo. Baldwin, F.R.H.S., Toronto, Ont.

AS the early sowings of flowers come into bloom, provide for their succession by the sowing of all annual flowers early this month, and thus have a garden full of life when your neighbour's is possibly on the down grade. Keep the faded flowers picked off as soon as the petals fall This prevents seed formation, and thus gives vigor and longer life to the blooming period. Cultivate as freely and as often as circumstances will permit.

Last month we told you that it was not too late to make a garden, if you had just moved into a new home. Don't be shocked when we tell you that the first week in July is not too late, for if there is anything that The Canadian Horticulturist has constantly insisted on, it is the keeping up of interest in gardening, by succession, late planting, cultivating, and watering. You have often been out for a walk either on business or pleasure, on a sweltering hot July day. How glad you were to get back into a shady nook in the garden and have a nice ice-cold drink of water! How it refreshed and put new life into you! You also know what a thorough soaking of cold water means to the garden, also, what stirring the soil means, making the beds loose, airy, and congenial. Think of this during the very hot weather.

Did you carry out the directions of last month for spraying rose bushes? Give them a final spraying early this month with one pound of arsenate of lead to ten gallons of water. Every bug you kill in the freshness of its youth, means several hundred less eggs next year. Don't neglect the lawn because it looks fairly well, but repair any holes which may appear. Dig up these spots, scatter fresh seed and keep the earth moist.

The house plants which you plunged into the border should now be taken up, repotted, and made ready for the house again in August. Don't forget the necessary evil, the weeds. Keep right after them. To do so means more than mere neatness, they are blessings in disguise, forcing as they do, cultivation. Remember, also, that if weeds do not thrive, nothing else will.

What a Garden Does.

Ours is a free country. No one can appreciate this better than the man or woman who has a well kept garden. There is a degree of independence connected with the possession of a garden that keeps us from running to the florist for flowers, to the grocery story and pedlars for so called fresh (?) vegetables, and to fruit stores for luscious fruits. Who, therefore, would not have a flower border, a strawberry and asparagus patch and a kitchen garden with a few dwarf or trailing fruit trees intermingled? It cuts the meat bill in two, and dispenses with the doctor most of the time, for, having a good garden you do not lack for appetite, amusement, excitement, and fascinating entertainment. A garden transforms a house into a home, and, above all, the nearer you get to nature, the nearer you get to the Great Gardener of the Universe.

In July, gardens should be at their zenith of productiveness. Is yours? Keep the succession mania constantly before you, that you may have a continuity of crops of all kinds. See that your garden is as successful as you anticipated in the early spring. In going into the vegetable garden, "cultiva tion" is the slogan. Water them as often as you can. Apply a little nitrate of soda occasionally, lime on cabbages, melons and cucumbers, arsenate of lead for tomatoes, egg plants, and potatoes, hellebore on others that need it. This will disappoint the bugs.

The cutting of asparagus should be finished. Do not forget the plants. A bed five feet by twenty feet is benefitted by four pounds of salt, to one pound of nitrate of soda. Use hellebore for asparagus beetle.

The successful cultivator of strawberries must not delay in getting a well rooted stock of young plants before the old plants are done fruiting. This will not damage the old plants, and will give you the best stock for a new bed which will develop into fine specimens for the following fruiting season, and thus save a year's time.

The following is a list of vegetables you can plant now: beans, carrots, celery, corn, cress, cucumber, lettuce, onions, potatoes, turnips, beets, cabbage, cauliflower, chard, salads, peas,

A portion of the garden of Mr. R. B. Angus, of Montreal, at his summer residence at Ste. Anne de Bellevue, Que.

These lake shore gardens in Halleybury, Ont., demonstrate how nicely flowers will bloom in New Ontario in spite of the short season.

spinach, and herbs. What more do you want? Take more care in transplanting than earlier in the season. The one crop to be given most attention now is celery. With a view to succession, keep the early celery well watered, cultivated, hilled up as it grows, and feeding with liquid manure with a teaspoonful of nitrate of soda to a pail full once a week. Do not let soil get into the heart. Use Bordeaux mixture for blight, and set out fresh plants as fast as room can be found for them. Onions being shallow rooted need lots of water and feeding.

Trim the Tomatoes.

Keep the tomatoes well trimmed of laterals. Do not let the plants have extremes as to moisture at roots, as this causes black rot. I have formed theories on the subject of tomatoes for years, and the varieties that have stood the final tests with me, are Chalk's Early Jewel, which matures a little later than Earliana, but makes up for it in productiveness, smoothness and quality, and is to my mind the ideal scarlet variety for the home garden. It is fine for slicing. Earliana is the earliest to ripen and takes second place to Chalks for its meaty and acid qualities. Next comes Livingston's Coreless. Though not so well known it will eventually become, I feel, the leader on account of two distinct characteristics, namely, it does well in partially shady locations. This is a good feature for the home or city back garden, where partial shade predominates, owing to high board fences and neighbour's trees. Secondly, it is as round as a baseball, and, consequently, there is no waste in slicing. It has a good smooth skin, beautiful color and fine flavor. Some gardeners prefer size to quality, and, consequently, go in for Ponderosa and Beefsteak, two varieties which are large, ugly, indented at stem, and do not rank with others in quality.

Of the pink varieties of tomatoes Beauty seems to suit the Toronto district well. It is very handsome in appearance, has a mild flavor, and is also good for slicing. June Pink runs it a good second. It is a trifle earlier, ripens quickly, but is not so meaty, and will not slice so handily. These five varieties will fill the requirements of any home garden, with the possible exception of adding the small fruited varieties used principally for the dinner pail and picnic baskets.

Cauliflower is the most highly appreciated and most delicately flavored of all the cabbage family. It is generally regarded, erroneously, as being the most difficult to grow, although the truth is that providing the soil and climatic conditions are favorable it can be grown easily. I have grown cauliflower in my city backyard garden, equal to any displayed for sale in shop windows. It requires a cool corner, a rich, loamy, retentive soil, with much humus, must be grown quickly, and is a lover of moisture. Some people will say this is easier said than done, but not so. Get the seed in early, transplant carefully into a rich soil, and by frequent attention, have good, strong plants when planting out time comes. Another drawback to quality is the proper handling in bleaching by covering the heads with their own leaves. The best variety for the home garden is the early dwarf Erfurt or Snowball.

The Compost Heap

Choose a spot for your compost heap where material may be added to it from time to time and where rain will not drain away too much of the fertilizing value. It is a good plan to sow the heap over with cow peas, oats, sow beans, clover or some other green crop and when the growth is eight or ten inches high fork it into the heap. This keeps it from becoming too dry.

Small heaps, containing about a wagon load of compost may be made with the material mentioned above with the addition of fifty pounds of bone meal, fifty pounds of ground phosphate rock, fifty pounds of hydrated lime and ten pounds of nitrate of soda. This makes a compost exceedingly rich in fertilizing elements, but is rather expensive for ordinary garden use.

Summer Care of Roses

Dorothy Perkins

THE rosarian's path is not thornless. One has to contend with dry, hot seasons, cold, wet seasons, and the numerous little insects which seem prone to worry the rose, and drive the grower to distraction, unless every precaution is taken. Keep the soil around the rose bushes well hoed in hot weather, so that the moisture and air will permeate to the roots. Liquid manure, made by placing a couple of pecks of manure in a rain barrel filled with water, should not be used after the real hot weather has arrived. Allow about one gallon of the liquid diluted with more water until straw coloured, to each bush, and apply after a rain. This is an excellent nourishment for roses, especially for those grown for show purposes.

As soon as the new leaves appear commence spraying for aphids. How they love to form in one grand procession on the new shoots, sucking the sap and closing the pores. Over night they feast on the leaves, and in the morning one is liable to find only the skeleton of the leaf. Fine hose spraying is often suggested, but it is really almost useless, it only washes off the little flies, and they make their way to another bush. Buy a small bottle of nicotine, follow the directions and spray, spray until both arms ache, then commandeer the family's arms and continue operations. Spray under the leaves and on top of the leaves, but never on the rose itself. Whale oil soap is less expensive, but not so effective.

Mildew on the bushes is often caused by poor drainage, so don't forget the porous bottom in the rose bed. The first indication of mildew is a grayish white dust, like powder, resting on the bush. In a day or so the leaves curl up, and the buds become large, but refuse to open, and have a blistery appearance. As soon as the disease is discovered, dust the whole bush with ordinary household sulphur. If this is ineffective spray with Abol, which can be purchased at any seed house.

These two diseases are most common to roses, but with precaution, early in the season, can be overcome. If you are not successful in checking the mildew throw the bush away.

The Garden and Grounds of Clydagh House

Mrs. R. B. Potts, Hamilton, Ont.

TO define all the lovely floral pictures which are revealed through a visit to the grounds and gardens of "Clydagh House," the residence of George Lynch Staunton, K.C., of Hamilton, would be as impossible as to adequately portray by pen sketch

This beauty spot in the garden at Clydagh shows anchusa in the foreground with pink ramblers climbing the framework behind and hollyhocks in pink and pinky fawn in the rear. (Photo by Mrs. R. B. Potts.)

the beauties found in this place. The sketch I here attempt is not the result of a single inspection, but an effort to sum up the impressions left on the memory from several visits, strengthened by the camera, whose aid has frequently been sought when garden visiting.

To enter the grounds one may choose the small gateway which is the first entrance reached, or by the carriage driveway. If the former is selected the visitor passes under vine-clad arches, through what might be termed a wild-tame flower garden, nestling in a bracket of the escarpment. Here, while the hardy varieties other than native have been introduced, the old nature of things has not been too rudely intruded upon, and the gay beds with the grey of the escarpment for a background, are sufficiently attractive to cause one to linger before ascending the steps, which will bring the visitor upon the lawn surrounding the house. If this is the route chosen, the beautiful iris border, an illustration of which appeared in the March issue of The Canadian Horticulturist, would be immediately to the visitor's left. It is worthy a close inspection. The iris of lovely violet tones have behind them paeonies in rose and rose-pink shades, while to the rear of these again one sees weigelias (rosea and Eva Rathke), with the rose-colored acacias to add to the beauty of this section of the grounds.

While the borders of shrubs which encircle this lawn are very enticing, an initiated visitor might be apt to suggest that the entry be made through the other entrance. On following this plan the iris border is now immediately on the visitor's right, while to the left, running the whole length of the long drive-way, from the very portals of the gate to the carriage-house, is a deep herbaceous border, gay throughout the season, and varying in color as the weeks pass. At one time the tone prevailing seems to be a salmony-pink due to the edging of dianthus barbatus; again the anchusa blue seems to be the predominating note, but whatever the tone-color the inmates of this border are most interesting, and cause a lingering, though the garden proper has not yet been reached.

Passing along the walk and reaching the front of the house the green sward, with its tree-studded stretches, and shrub borders might again lead to a tarrying did not the rustic frame-work which encircles the garden and the pergolas—all vine-clad with roses, clematis, dutchman's pipe—suggest beauties yet to be explored, since, through the openings, what is revealed cannot be resisted. The eye catches at one moment sprays of Dorothy Perkins' roses and brown frame work, enclosing masses of delphinium, suggesting a framed picture; or the red rambler rioting over the rustic frame, giving a glimpse of huge masses of Frau Karl Druschki and clumps of hollyhocks beyond. Whatever the bit revealed, it is all alluring, and leads to the desire to enjoy the comfort of the garden seats so happily placed, and there to dream and peacefully drink in to the full the beauty of the scene. This spot is never more beautiful than when the sun is gliding down in the west, producing a spirit of worship, making Stoddard's words part of the ritual:

"Once more we thank thee, Flora, and once more
Perform our rites as we were used to do.
O bless us, smile upon, us, fair and true,
And watch the flowers till summer's reign is o'er."

Passing under the trees, and through the pergola, one enters the flower garden proper. Here are long rectangular beds full of blooming flowers, masses of nearly all the hardy varieties one usually finds in garden beds. From the walks here, whichever way one turns, are picture bits, some framed with the rustic frame-work, which bears its rose—and other vine—decorations throughout its length. One glorious bit was composed of Anchusa italica in the foreground, the brown of the frame with its rosy covering in the rear, and beyond this stately hollyhocks in pink, and pinky-fawn shades, which seemed

A walk in the flower garden at "Clydagh" with Frau Karls noticeably in evidence. This walk ends in a pergola that is covered with rose and clematis vines. (Photo by Mrs. R. B. Potts.)

This view from the pergola in the garden at Clydagh shows the pink ramblers climbing over the framework and reveals a mass of lovely delphiniums that add their full share of beauty to the scene. (Photo by Mrs. R. B. Potts.)

to aspire to reach up to touch the braneches of the lovely apple tree that neighbored with them.

One seene deeply printed on "memory's walls" is that of "the summer carnival of flowers" as viewed one glorious evening. The setting sun, going down red in the west, added touches of eolor to the foliage, as well as to the rest of the gorgeous display while a ehoir of bird voiees chanted their evensong. Gazing westward toward the setting sun, these words were burned into memory, with "the living picture":

"The Lord God planted a garden,
In the first white days of the world,
And placed there an angel warden,
In a garment of light enfurled;
So near to the peaee of heaven,
The hawk might nest with the wren,
For there in the cool of the even,
God walked with the first of men.

"And I dreamed that these garden closes,
With their shade and sun-fleeked sod,
And their lilies and bowers of roses
Were laid by the hand of God.
The kiss of the sun for pardon,
The song of the birds for mirth,
One is nearer God's heart in a garden
Than anywhere else on earth."

These beauty dreams and inspirations eome to garden lovers when the privileges of such gardens as "Clydagh House" are possible. One leaves to reenter the workaday world refreshed in spirit, and with a feeling that the lost Eden may yet be found.

Garden Suggestions for July

Henry Gibson

WITH the hot, dry heat of midsummer thorough eultivation is imperative to retain all the moisture possible in the soil. Thorough eultivation reduces the neeessity of watering to a minimum, although oft-times it is neeessary to water during spells of prolonged drought. When this oeeurs see to it that sufficient water is given to saturate the soil several inches deep. Sprinkling the top only serves to attraet the rootlets to the surface, where they are destroyed by subsequent droughts.

At this time of the year all kinds of aphis make their presence felt. If left unmolested they will do untold harm, especially on those plants that have suffered from drought or surface sprinkling. A plant that has been adequately supplied with water is in a better condition to withstand the attaeks of inseets than one that has had its vitality diminished through lack of water. Nearly all garden crops are subject to the attaeks of aphis. Any of the standard nieotine extraets or soapy sprays will eradieate them, but it is better to take time by the forelock and apply a weak solution as a preventive. Asparagus that is attaeked by the asparagus beetle should be sprayed in the early morning when the dew is still on the plants with arsenate of lead.

Late cabbage, cauliflower and celery should be set out this month. Be sure that you wet the soil thoroughly before you attempt to lift the plants for transplanting, and in addition see to it that the roots are dipped in a puddle made by mixing clay and water to the consistency of paint. This, in conjunction with frequent spraying overhead will assist the plants to readily re-establish themselves. At the first appearanee of rust on the eelery, spray with bordeaux mixture. Blight on the musk melons eannot be cured though spraying with bordeaux will prevent it from attaeking the plants. As soon as blight has got into your melon plants gather up and burn the infeeted plants to prevent the disease spreading. Spray the potatoes with bordeaux and arsenate of lead mixed to prevent blight, and to kill the potato bugs.

Beans are subject to rust. A spraying of bordeaux will help to keep them clean. Feed your leeks, and onions with liquid eow-manure, and give an occasional light dose of nitrate of soda if you desire to have quality.

To have them continue blooming sweet peas should have the flowers picked off every day, and should not be allowed to suffer for want of water at the roots. Give them a thorough soaking of water just about sun down, and next morning apply a thiek mulch of long litter. This will prevent too rapid evaporation of the moisture from the soil. Sweet peas are gross feeders, and to have long stems feed them with liquid manure or eommereial fertilizers at least onee a week. Care should be taken when applying such commercial fertilizers as nitrate of soda not to burn the roots of the plants. Little and often is the golden rule in this ease, and, if possible, apply just before a rain.

Continuous flowering plants, such as coreopsis, pyrethrum, etc., should have the flowers picked clear or they will soon stop blooming. It is too great a tax on the energy of a plant to allow it to ripen its flower spikes during the heat of the summer. Keep them eut off (unless you want to save some seeds), and you will be rewarded by a continuous supply of fresh blooms each week. If the weather is very dry a mulch of litter will be of considerable assistanee in conserving the moisture in the soil and keeping the roots eool. Hollyhoeks need to be sprayed with bordeaux to control the hollyhoek disease. Rust is very partial to these plants, but we know of no eure for it. We have tried many remedies, but all so far have failed to eheek this disease on the hollyhoek. Nasturtium and other sueculent plants are very subjeet to attacks of aphis, and should be sprayed with some of the nieotine extraets as a preeautionary measure.

The biennial tyes of eampanulas and digitalis should be pulled out and thrown away after flowering. Any of the young seedling foxgloves that spring up near where the seeds from the old plants fell should be saved and transplanted to grow into flowering plants for another season.

The early flowering shrubs should be pruned as soon after they are through flowering as possible. Do not, however, go at this work indiscriminately. Each of these plants have certain characteristics of their own, and should be treated accordingly. Study the habit of growth of your plants when pruning them. You cannot know them too well. The general idea to keep in mind is to cut only with the object of encouraging the subsequent growth of vigorous young wood that will produce flowers abundantly another spring. In all cases give the preference to the young and most vigorous wood. Cut away all dead branches, and keep the centre of the plants open to admit sun and air.

Keep the dead leaves picked off the roses, and apply a mulch of well-rotted cow-manure to them. Prune the same as you would any other flowering shrub, to encourage the development of young flowering wood. From now on till September spray the roses to keep mildew in check. There are several very effective remedies on the market all ready prepared for use, such as fungine, bordeaux, pyrox, copper solution. The formula used on the estate of Admiral Aaron Ward, where the famous Mrs. Aaron Ward Rose was raised is as follows:

Copper Carbonate ..... 3 ozs.
Ammonia (22 Beaume) .... 1 quart

Two quarts of this mixture is used to 50 gallons of water, and spraying is done every ten days from July to September.

The Vegetable Garden in July

H. J. Moore, Queen Victoria Park, Niagara Falls, Ont.

DURING July much important work must be done in the vegetable garden. In fact, it is difficult to enumerate the hundred and one odd jobs which the garden lover must perform in order to produce good crops. A well-kept and well-cropped garden will, however, repay a hundred fold for the labor expended on it.

If any cauliflower heads are forming break a leaf over them and later tie the leaves around them to protect from rain and to exclude light. Tie at the points so as to leave room for the development of the head. When tall varieties of late peas are six inches high stake with brush. Peas, which are allowed to fall to the ground, do not produce freely, as air and light, which are necessary for their development, cannot freely circulate through the stems. The leaves of peas which lie on the ground are often eaten by insects, attacked by mildew, or they decay through lack of light and air.

Pole beans which are growing in hills should also at this time be afforded brush if this has not already been done. Apart from their culinary use climbing beans impart a picturesque appearance to the vegetable garden, especially when clinging to brush.

Crops like cabbages which have been depleted by use should have the vacancies filled with a late variety so as to maintain the patch in full bearing. By this means a quantity may be grown for winter storage.

It is too late to sow celery, but plantings may still be made if vigorous plants are chosen. During the hot month of July it is well to plant this and other crops in the evening, or if by chance a dull or showery day happens advantage of it should be taken. In any case, always water the plants at once, and where practicable shade them from sunlight.

If spraying is necessary it should always be done at sunset. Paris green, when applied as a remedy for the potatoe bug may, during sunlight, cause considerable harm. The mistake of applying it and other sprays on bright days should be avoided. The drops of water act as lenses, thus causing concentration of the sun's rays, hence the subsequent burnt appearance of the leaves. Sprays which contain kerosene should also be applied as the sun declines.

Frame Culture.

Frame culture of late fall crops, although little practised, is gradually coming into vogue, for by it many vegetables and salads may be had at a time when out door crops are impossible. Where frame culture is practised the soil should be made rich, and be worked to a fine texture. Once in this condition it is easy to maintain by occasionally applying stable manure. Carrots, beets, radishes, onions, mustard, cress, and spinach, lend themselves readily to this form of culture, it being only necessary to cover the frames with sash with the advent of cold nights. The end of July is a good time to make a sowing of the vegetables mentioned, and other subjects in frames, and from the middle of September onward many of them will be ready for the table.

Outdoor crops should be cultivated incessantly. Work the ground with the wheel cultivator or hoe. Not only will this important work result in increased crops during the current year, but also by cleaning the soil of weeds and pulverizing it will leave it in a better condition for next season's crops.

Garden Suggestions

Fertilize tomatoes in the hill. They prefer a rich soil, and if you reside in the country and keep a few hens you will find that a few cleanings from the yard prove excellent for securing luxuriant growth and perfecting of the fruit. If the soil is stirred frequently there is no need to worry much about dry weather. Furnish stakes for the tomatoes early. A wind storm may work havoc otherwise; besides, you do not want them lying on the ground, the fruit being more susceptible to rot.

Paeony flowered dahlias as grown in Queen Victoria Park, Niagara Falls, Ont. (Photo by H. J. Moore.)

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated The Canadian Bee Journal.
Published by The Horticultural Publishing Company, Limited,

PETERBORO, ONTARIO

H. BRONSON COWAN, Managing Director.

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1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests. The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, and of The Canadian Horticulturist and Beekeeper, $1.00 a year. For United States and local subscriptions (in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising rates, $1.40 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December 1915. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 13,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1915	11,158	August, 1915	10,294
February, 1915	10,942	September, 1915	10,067
March, 1915	10,864	October, 1915	10,017
April, 1915	10,917	November, 1915	9,704
May, 1915	10,927	December, 1915	9,253
June, 1915	10,329		
July, 1915	10,448	Total	124,920

Average each issue in 1907 6,627
Average each issue in 1915 10,410

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not apply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honorable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

Trade Marking Fruit

Advertising campaigns to increase the consumption of fruit, such as that being conducted this year by the fruit growers of the Niagara District, will bring a new and powerful influence to bear in favor of the use of advanced cooperative methods in the marketing of all such fruit. A successful advertising campaign, in these days of large circulations, costs thousands of dollars. If the goods so advertised are good the public in time becomes acquainted with the fact and year after year is willing to purchase more of such goods. For this reason a trade mark, once it becomes established, has a value which in the case of some well known and long advertised products is valued in the hundreds of thousands of dollars. For the same reason, also, it has been found that unless the goods advertised can be guaranteed to be of uniform high quality, to advertise them is apt to prove disastrous. The public once having tried them and been disappointed, becomes prejudiced against them and their consumption is curtailed instead of being increased.

Several of the large fruit growing associations on the Pacific coast, notably the orange and raisin growers, recognized the importance of protecting the quality of their brands before they launched their advertising campaigns and took steps that ensured a uniform pack of high quality. The result has been that these brands are known all over the continent and thousands of people ask as naturally for these brands as they do for any well known breakfast foods.

An effort has been made in the Niagara district to ensure only good fruit being sold, but it is certain to prove inadequate to reap the most possible good from the campaign as long as the products of the members are not marketed through central packing houses so that uniformity of pack can be guaranteed and maintained. If the advertising campaign is to be continued successfully cooperative packing will soon become absolutely necessary.

The Late Dr. James

While the late Dr. C. C. James was known from coast to coast because of his successful efforts to advance the cause of agriculture, only those who knew him intimately could fully appreciate his worth as a man and as a citizen. His was a rare and many sided personality. Well educated, a traveller in many lands, cultured, he yet maintained the simple, approachable, sympathetic disposition that won him many lasting friends in all classes of society. This was one of the secrets of his great success. It enabled him to draw from men their views on matters of public moment to an extent not possible with most men. In this way he was often led to sound conclusions that later were framed into important legislation.

Dr. James had the rare faculty of being able to look ahead and anticipate public needs. Thus he always seemed to be not only fully abreast of the times, but ready for every emergency as it arose. His wise foresight and tact often enabled him to dispose of important public issues efficiently and satisfactorily, which in less skillful hands might have proved causes of great trouble and friction. His death will mean a definite loss to the people of Canada. We have reason to be grateful that he has lived. The benefits that are so freely flowing from his numerous achievements will be a lasting monument to his worth.

Weeds on City Lots

Have you ever noticed the wonderful crops of weeds that thrive at this season of the year on the vacant lots of your town or city, especially on the outskirts of the municipality. Various methods of dealing with this nuisance have been suggested. One is that municipal officers and road masters should be given authority to cut the weeds on vacant property and assess the cost to the property owners. This suggestion has much to commend it.

The main cause of this trouble arises from the speculative holding of land for an expected advance in value. Those who hold land in this way do not intend to use it themselves, but continue to demand a price for it that effectively keeps it out of the reach of many who would be glad to use it if they had the chance. Were municipalities to lower the tax on improvements and add it to land values as has been done of late years by many municipalities in Western Canada and elsewhere, much of this vacant land would soon be placed on the market and ultimately put to productive use. Such action would make it easier for municipalities to acquire land for park purposes, and would facilitate the erection of better houses for and by working people. All who favor civic improvement should place the taxation of land values as one of the first planks in their platform.

Self Poise Pays

The moment the element of fear enters a man's mind that moment his judgment and reason become undermined to exactly the extent that he gives room to his fears. When some one in a crowded building yells "fire" and starts to rush for the exits a general panic is likely to happen. People act on the impulse prompted by their fears when were they to wait but for a few moments they might find alarm was not warranted.

Fruit growers who early in the season begin to shout "over production," "glutted markets," "low prices," help to bring about the condition they are anxious to avoid. In this they are often helped along by shrewd buyers. Such talk is unsettling, helps to depress prices and works general harm. Fortunately there is little ground for panicky feelings this season. Crops on the whole are likely to be good but not large. The public is prosperous. There should be a large consumption and reasonable prices.

A teamster in the city of Ottawa, who backed his waggon against a city shade tree and damaged it was apprehended and fined five dollars by the city magistrate as a warning to other careless drivers. The constable who arrested this man, as well as the magistrate who fined him, both showed a practical interest in civic improvement.

The fact that there are some half dozen dusters in use in Ontario orchards already, although their value has not yet been reported on definitely by any of our Canadian government stations, indicates how keen will be the demand for them if the experiments in their use that have been conducted this season prove successful.

This season is likely to prove another in which the Economy crate will be in demand. It may result in steps being taken to standardize this type of package.

SOCIETY NOTES

Ottawa

An exhibition of paeonies was held by the Ottawa Horticultural Society during June. The large cut blooms were arranged around the hall on small tables in vases, while special exhibits from the Experimental Farm and by Mr. R. J. Farrell, the president of the society, occupied special spaces by themselves. The collection of blooms was magnificent, and the hall was packed to capacity throughout the evening by interested visitors.

Mayor Porter officially opened the show. During the judging of the entries an address on "Seasonable Topics for Flower Growers" was given by Mr. W. Hunt, of the Ontario Agricultural College, Guelph, during which he touched upon the popular flower of the evening, the paeony, its cultivation and care of the plant. The question box was taken advantage of by a number of those present.

Flowers for Hospitals.

At the close of the exhibition many exhibitors donated their cut blooms to the Ladies' Auxiliary of the Horticultural Show for distribution to the sick in the hospitals. During the winter months the ladies saw personally that the sick in the hospitals received cut flowers from time to time. The flowers were secured through the kindness of those who had greenhouses and from plants grown by the ladies themselves.

Toronto

The rose show of the Toronto Horticulture Society, held during June, was made beautiful not only by the fine display of roses, but of paeonies and other flowers as well. The hall was filled with tables bearing almost every variety of seasonable flower, which elicited admiration and delight from the large crowds that thronged the hall all evening. The display of paeonies was the largest ever shown by the society, and the crowd was also a record-breaker.

Judging by the display of raw, blue giant larkspur, the rainy season must have helped that flower wonderfully, some of the spikes of bloom being eighteen inches long. A fine collection of paeonies, including many recent importations from France, decorated the long tables contributed by Miss Blacklock of Meadowvale, as well as many beautiful hardy perennials tastefully arranged.

A fine display of palms, ferns and flowering plants from the conservatories of Sir Edmund B. Osler, was much admired, and crowds lingered around it. The displays in the children's department were excellent, and competition was keen. Beets, radishes, lettuce, onions and other vegetables were much in evidence, showing an awakening interest in the society's instructions regarding the growing of foodstuffs.

After the exhibition the flowers were auctioned off and the proceeds given to the Red Cross Society. Bidding was keen, and a substantial sum was realized. Some of the flowers were sent to the Home for Incurables.

The gold medal for roses was won by Mr. F. L. Green, who also took a silver medal for another collection of roses, a silver medal for a collection of paeonies, a silver medal for delphiniums, and a silver medal for perennials. The gold medal for perennials was won by Dr. Brethour. Special prizes were taken by Miss Blacklock, Sir E. B. Osler, Mr. H. H. Love and Mr. James H. Howarth.

Planning Cities to Make Them Beautiful

Thos. Adams, Ottawa, Tow n Planning Adviser, Commiss on of Conservation

EDINBURGH, in Scotland, is an example of the proper placing of many public buildings in the newer part of the city. The buildings overlooking Princess Street Gardens are not more beautiful in design than many public buildings in Canada, but the gardens and the spaciousness surrounding them sets them off to much better advantage. The natural beauties of Edinburgh have been made more beautiful by the art of the citizens. The features of its sky line are spires and domes and monuments which are symbols of the spirituality, the civic pride, the art, the intellect and the patriotism of the Scottish people. To look upon a picture of central Edinburgh is to be reminded of the triumphs in art, in literature and in loyal courage of her citizens.

What is it that contributes so much to the nobility and dignity of the architecture of Edinburgh? It is the spacious setting of her public buildings, outstanding, not so much as artistic units, but in their grouping, in their harmonious relation to one another, and above all in the natural beauty and artistic lay-out of their surroundings. The landscape architect and the gardener have been partners with the architect and the builder. Imagine taking the classic building which houses the Academy of Art from its isolation on the Edinburgh Mound, amidst the gardens of Princes St., and placing it at the corner of Yonge and King Sts., Toronto. You would spoil both the facades of these streets and the beauty of the building. Imagine on the other hand the Bank of Toronto being placed on an eminence surrounded by a Princes Street garden; or even imagine it being finished off as one building on an open site, and you can realize how much it would adorn the city of Toronto.

What sky lines have we in Toronto, Winnipeg, or other Canadian cities, and what do they symbolize? Sky-scrapers, water-tanks, chimneys and electric wires,—useful and capable of artistic expression in their proper place,—dominate everything. Many of our best buildings are lost in a maze of commercialized disorder—part of a meaningless conglomeration of buildings rising cliff-like from our narrow streets. They symbolize misplaced and misdirected art, the want of science in planning, licence which we miscall liberty, and a kind of commercialism which is misnamed business efficiency. Edinburgh has no lake front, it lacks the beautiful ravines that surround Toronto and it owes little if anything more to nature than Toronto does, although, of course, its site is different and requires different treatment. But it owes more to the foresight of its citizens.

We do not lack in intelligence, in architectural ability, in the art of landscape gardening, or in business qualities in Canada. But as a people we are slow to appreciate the value of imagination, the need for preserving natural features, the power of spacious surroundings to ennoble and beautify our buildings.

We need the horticulturist and the architect to cooperate more and ample space to be provided for each to exercise his art to full advantage. There is enough land and to spare in Canada and there is a growing appreciation of beauty. Among other things we need more planning of the land, less crowding of the buildings and more use of the art of the landscape gardener.

The Maine Agricultural Experiment Station, Orono, Maine, has issued two bulletins, one dealing with "Poisoned Sprays as a Bait for the Fly of the Apple Maggot," and the other "Six years of Experimental Apple Spraying at Highmoor Farm," being Bulletin No. 249.

The Dairy and Cold Storage Branch of the Department of Agriculture at Ottawa has issued Bulletin 48 of the Dairy and Cold Storage Series, entitled "Precooling, Shipment and Cold Storage of Tender Fruit." This also contains notes on packing and packages. This is by Edwin Smith, assisted by J. M. Creelman, B.S.A.

A flower bed planted by the Galt Horticultural Society.

The Outlook for Fruit

Dr. A. J. Grant, Thedford, Ont., President, Ontario Fruit Growers' Association

TO say that all fruit-growers are pessimists, would be an extreme statement, but my association of several years with the fruit business has led me to the conclusion that too many growers are pessimists for the general good of the industry. Whoever heard of a manufacturer or a business man, in the ordinary sense of the term, burning up his time and energy in depreciating the value of his own product, and yet the spectacle of fruit-growers, not only talking down their own product, but rushing into print to depreciate its value, has been painfully common during the past few years.

We are producing commodities, which should be, and are, among the staple articles of diet in most households. The fact that all fruits are more or less perishable introduces many problems, which it is up to the producer to solve. Would it not be more rational to devote our energy, as business men as well as fruit-growers, to the proper solution of these difficulties rather than singing "blue ruin from the housetops" into the ears of the very people who are reaching out every year for a supply of our products.

Not a Phenomenal Crop.

The approaching season should be a good one for the growers, but the stage has been prepared in the minds of the public for a session of over production and low prices—very good medicine for the consumer but mighty poor solace for the grower, who is depending upon the proceeds of his fruit to buy shoes for the children, and pay some of the other sundry expenses which must be met in the course of life's journey.

From present appearances we will be blessed this year with a good crop of fruit, from strawberries clear through to winter apples, but there is no reason to believe that the crop will be phenomenally large in any line, as nature's thinning has already been very much in evidence with at least several of our standard fruits. The weather during the time of fertilization has been anything but favorable to this most necessary process, so that "setting" has not been at all in proportion to the amount of blossom.

In the case of apples the weather has provided the most favorable possible conditions for the growth of fungus diseases, so that the fellow who has clean apples this year will be the one who has been on the job persistently and often with the spraying outfit, working hard to produce marketable fruit. I mention these factors simply to offset the idea that has already become too prevalent, that every old tree, in everybody's back yard, is going to be loaded to the breaking point with high-class fruit. I am fully satisfied that the producer of apples, who is properly caring for his orchard this season, and who is wise enough to have a proper selling connection, will make some money, but I am not so sanguine about what will happen the grower who has been neglecting his trees.

Call for Co-operation.

Large producers of fruit are usually pretty fair business men, and in my experience, most of them in Ontario have done well and are continuing to make money. The salvation of the smaller grower is undoubtedly to join with a number of his neighbors and form an association so that the combined output will permit of the employment of a business manager to run the association and market the fruit. Let me emphasize the importance of a business manager in every sense of the term. Many of our associations are falling down because of the fact that the manager is either not a thorough business man who knows the trade and has selling connections, or is handicapped by the petty interference of members at every turn until his usefulness as a manager is utterly destroyed. Of course, it follows that a capable manager who can make a success of the business must be paid well for his services. Another stumbling block in many of our associations is that the members fail to realize the fact that a good man cannot and will not work for a mere pittance, and the fellow who is willing to do it will usually prove to be incapable. This is common logic which applies to business in every path of life. As growers, we have a great deal to learn about the art of selling.

Aim to Satisfy.

I might say that the strongest element in the success of the successful manufacturer or wholesaler is his ability to satisfy his customers and keep them coming. This is his constant aim, and commands most of his attention. An article might be constructed of the best material, in the best possible way, and yet if it did not meet the demands of an exacting public the energy and cost of production would be lost. It must be a "good seller." How much time do we fruitgrowers consume in studying and acquainting ourselves with the likes and dislikes of the consuming public? How much thought do we give to the manner in which they like their fruit brought to the door? How seriously do we consider the impression which our package of fruit is going to make upon the consumer after he has paid some real money for it? These are the questions which should be the burning ones in the minds of fruitgrowers who are anxious to establish permanent trade connections and thereby a sure outlet at fair prices.

People are becoming more discriminating all the time. Quality at fair prices is in constant demand. Inferior fruit is a menace to any market; the people don't want it, and the interests of the grower would be much better served if such stuff were never put up and nothing but first-class goods offered. Let us continually have the consumer before us and endeavor to make the impression so favorable that he will want more of the same brand of fruit.

People Have Money to Buy With.

In spite of the fact that our country is at war, we are enjoying a great period of prosperity. Thousands of people in our cities and towns are living better than they ever lived before; there is an abundance of money in circulation and many people will consume large quantities of fruit this year who have heretofore not been in a position to do so. This element in itself will enormously increase the home consumption of fruits of all kinds and should more than compensate for the restricted export facilities which promise to face the apple trade. Many industries have been waxing fat upon the outflow of money which is bound to go on as a result of the war. Let the fruit-grower take some comfort in the fact that the tide will turn his way when he puts his luscious berries and fruits on the market. Nothing is more appetizing or tempting than good fruit—let us see to it that nothing but the real good fruit gets on the market.

As fruit-growers we discuss the improvement of our marketing facilities, transportation evils and methods of distribution—and these are vital questions which will stand a great deal of improvement, but the ghastly fact remains that none of us are trying hard enough to satisfy the consumer and make him come back for more. We can increase the home consumption of fruits enormously if we strive to please the eye as well as tickle the palate, never forgetting that the consumer must have a square deal in every particular and full value for his money. The tendency to "just put a few nice ones on top" is one of the frailties of human nature, and is not by any means limited to fruit-growers "Put a few nice ones in the bottom" is a safer maxim and should be preached to every berry picker and fruit packer in the country. I have frequently watched packers, especially of apples and peaches, who had no financial interest in the fruit and yet would over-face, deliberately, in order to finish off a nice-looking package, never thinking of what the impression of the purchaser would be when he opened the package.

For the coming season: market only choice fruit, carefully graded and packed, using every possible care to get it to your market in good condition. Use good reliable trade connections in selling and you should show a substantial balance on the right side. The demand for good fruit will be very large.

Tests of Dust Sprayers

P. W. Hodgetts, Department of Agriculture Toronto

The Ontario Department of Agriculture has purchased and is operating two power dusters this season. The larger outfit, purchased from the Niagara Spray Company, has been working in the Niagara district under Prof. L. Caesar, with apples and tender fruits, and the smaller machine, bought from the Dust Sprayer Mfg. Co., of St. Louis, is being used entirely in our leased apple orchards at Thedford, Paris and Wellington.

Two dustings have been applied on the apples with great satisfaction in as far as speed and covering power are concerned. None of our men are experts as yet in the use of the duster, but we find that the dust can be applied at least four times as fast as the liquid, with much comfort to the operators. Two men and one horse would take the place of three men and a team using the liquid. Nothing can be said as yet as to the effectiveness of the dust on scab and insects. If present weather conditions continue, we should easily find out by harvest time the value of this new method.

Conditions of the Seed Market

G. Le Lacheur, Seed Division, Ottawa

Owing to the accumulation of large stocks of field root and vegetable seed supplies previous to the outbreak of war there was not much difficulty in supplying demands for most kinds of seed this spring, but unless much more seed than usual is grown in North America this year the situation may be serious in the spring of 1917. It is impossible to estimate to what extent seed growers in France who have been quite ready to take contracts may be able to make delivery.

Previous to the war a bonus of subvention was offered to growers to encourage the production of these seeds in Canada and when it became apparent that European supplies might be cut off or greatly curtailed, further efforts were made to stimulate home production. Farmers and gardeners were advised to save parent stock

for planting in the spring of 1915 and specially-trained men were employed to direct growers and inspect their crops. During the summer of 1915 field root and vegetable seeds were grown by 165 farmers and gardeners and inspected by officers of this branch. Many of them grew only sufficient seed for their own use, but 65 produced seed which passed inspection and for which subvention was paid. This quantity amounted to over 36,400 lbs., the subvention being over $1,300. The principal kinds and the approximate amounts produced were: sugar beet, 23,000 lbs.; mangel, 8,200; sugar mangel, 1,500; swede, 3,000; radish, 400; garden beet, 350; onion, 350.

The results generally have been satisfactory. The work of encouraging the production of these home grown seeds has been further extended this season but no estimate can as yet be made as to the quantities which are likely to be produced.

The Fruit Trade at Montreal

E. H. Wartman, Dom. Fruit Inspector, Montreal, P.Q.

TO-DAY, June 21st, as we say the longest day of the year, has brought us nearly to the close of imported strawberries for 1916. Shipments have come from Florida, Louisiana, Tennessee, Delaware, Maryland and Illinois, to the extent of 97 cars, which have aggregated at least $1,000 per car, or $97,000. This may seem a large quantity of this one kind of fruit to use in one city in so short a time, but when we consider it takes thirteen cars of strawberries to give each family one quart box in our city, our largest shipment in one day being five cars, would lead us conclusively to know many go without any of this most luscious fruit. I have had the pleasure of inspecting these ninety-seven cars, for honesty of pack. This has been the record year for quantity imported, and I think it quite proper to give credit to whom it is due, the berry boxes from these various States have been full pints and quarts, well filled, which has made the trade a phenomenal success.

The twentieth of June brought our first berries to hand from Ontario. They were sold by auction, at five and one-half cents a box, when Delaware berries brought at the same time fifteen cents. There seems to be something wrong in the price here. The price depends on size of box, quality of fruit and fulness of box. In the one case fruit was small and very green, and not well filled. The other boxes were full quarts, well filled, well ripened and in the best of condition. The greater part of the first and second days' shipments sold from seven and one-half to fourteen cents a box. I have never known berries of first picking to arrive so late. It has been surely an abnormal season for low temperatures and rain, which accounts for late ripening. However, these temperatures have been a blessing in disguise to the fruit men who have had berries three days in transit, and landed in splendid order. The bunkers had large quantities of ice left, which preserved the fruit.

The arrivals of California fruits, while ten days in transit, constitute a wonderful success. An expert who might try to devise a better package or better system of packing would have a hard task. The present package and packing has proved a great success.

The receivers delight in handling it, as it keeps well for many days after arrival. This gives them ample time to dispose of it at a remunerative profit. The banana trade is a wonderful trade. Its development has been phenomenally great. I think I am correct in saying there are more cars of this fruit consumed in our city than any other variety of fruit, not excepting the apple. It is the year around trade. Twenty-five years ago I paid fifty cents a dozen for bananas in Kingston, Ont., which would not cost to-day more than twenty cents for the same sample. The reason this fruit has so large a sale is, firstly, because it is wholesome. The second reason is, you can buy more pounds for $1 of this fruit than of any other, and freer from insect pests and diseased spots. For instance, to-day California cherries sell for fifty cents per lb. Bananas, if weighed, would cost about two cents per lb. These prices are the extreme prices to-day.

Apples first arrived from California, and sold on 19th June, brought $2.50 per box of three pecks. These were marked by importer, No. 2 Astrachan, and other varieties. There seems to be a lot of money in circulation here, which leads our fruit men to believe in a good summer's trade.

Manitoba

Jas. A. Neilson, Man. Agri. College, Winnipeg

During the past two years insect pests have been reported as doing a great deal of damage to shade and ornamental trees in Manitoba. In response to numerous requests for information on how to combat the various destructive insects, the Department of Horticulture and Forestry of the Manitoba Agricultural College decided to give a series of lectures and demonstrations on sprays and spraying, for the control of tree pests. This work is in charge of J. A. Neilson, of the Horticultural and Forestry Department.

Demonstrations were given at fifteen points in southern Manitoba. At each of the places visited, much injury was found to have been done. In some of the towns in the southern districts, as high as thirty per cent. of the Manitoba Maples were found to have been killed, and a large percentage injured. The reliable authority in one of these places estimates that fifty per cent. of the native maples have been destroyed. The aphis and the cankerworm have been responsible for nearly all of the losses sustained in the places visited. The department are recommending the use of arsenate of lead for the cankerworms and other biting insects, and nicotine sulphate for the aphis. Spring and fall cankerworms were found abundantly at Carman. In some places trees were almost defoliated by the cankerworms.

Several people in the vicinity of Morden, Carman and Roland reported the presence of a small dark brown beetle in enormous numbers. These beetles attacked the various members of the poplar family, cottonwoods, balm-of-gilead, and willows were badly infested. The insects appear very quickly, and do the damage in a short time. After they have attacked a grove of trees, the trees appear as though they have been scorched by fire. Specimens of these beetles were collected, and upon examination proved to be the willow leaf beetle (Galerucella decora), a species of beetle which infest poplars and willows.

Cutworms have been doing great damage to garden crops, spring grains, and alfalfa. A gentleman living near Portage la Prairie

Douglas Gardens
OAKVILLE, ONT.

IRISES.

In order to encourage the planting of Irises in the month of August—the best time for setting out Rhizomatous Irises—we offer a special discount of 20% on all orders for any Irises named in our Planting List, except Japanese Iris and Monspur and Orientalis, received up to the 31st August; and carriage to any part of Canada will be prepaid on all such orders.

16 vars. of Tall Bearded Iris.
5 vars. Interregna Iris.
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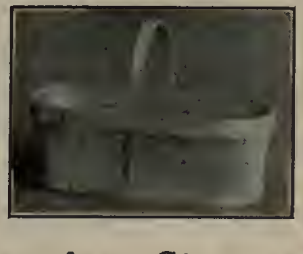

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Gentle, good honey gatherers, bred for business. Their mothers were imported—the best to be had. If you buy once you will buy always. Just look at these prices. Where can you find better?
Untested July to Oct. 1, 50c each in any quantity.
Select untested, July to Oct. 1, 1, 75c; 6, $4.25; 12, $8.00.
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We guarantee that all queens will reach you in good condition, to be purely mated and to give perfect satisfaction. All orders filled at once.

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Queens of MOORE'S STRAIN of Italians

PRODUCE WORKERS
That fill the super quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.
Untested queens, $1.00; six, $5.00; 12, $9.00. Select untested, $1.25; six, $6.00; 12, $11.00.
Safe arrival and satisfaction guaranteed.
Circular free.

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FOR SALE

Leather colored Italian Queens, choice breeding queens at $5.00 each. I guarantee these Queens to be as good as any imported Queen, barring none. Money refunded if dissatisfied after a year's trial. Warranted purely mated Queens, $1.00 each, $10.00 a dozen. Untested, by return mail, at 75c each, or $9.00 a dozen. Tested Queens, $1.50 each.

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Untested	$0.75	$4.25	$ 8.00
Select untested .	1.00	4.75	9.00
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Every queen PURELY mated. Safe delivery and perfect satisfaction guaranteed.

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is spreading in various parts of the country. The first step in its cure is a vigorous strain of ITALIANS

The Root Strain of Bees have shown ..Themselves to be Highly Resistant..

While we do not claim their introduction will alone cure European Foul Brood, or that it will not make a start in their colonies, we have reports of where they have, with a little help, fought themselves nearly clean of European Foul Brood which was all around them in black and hybrid colonies.
These queens will be ready for delivery about June 1. Orders will be filled in rotation. Later in the season we will make delivery promptly. PRICES.—Our regular price is $1.50 in June and $1.00 after July 1 for untested queens; but we will club them with Gleanings in Bee Culture for one year and a queen for $1.50, provided we can fill orders for queens when we have a surplus of them. This will probably be July and August.

The A. I. Root Company - - Medina, Ohio

had an eight acre field of alfalfa nearly destroyed by the red-backed cutworm. Several sections, one square foot in area, were examined to determine the degree of infestation. Counts were secured, which ranged from twenty-eight to seventy to the square foot. One could be perfectly safe in saying there were millions of cutworms in that alfalfa field. In another section, a sixty acre field of wheat was practically destroyed by cutworms.

The spruce gall louse was found to be doing damage to black and white spruce in various sections of the country.

During the past winter, great damage has been done to young fruit trees by bush rabbits. Owing to the great depth of snow, the rabbits could not be kept from the trees as in former years. The result is that many trees have been practically ruined by girdling.

The problem of controlling the different kinds of destructive insects in the prairie provinces is likely to became more important as years go by, and the country becomes more thickly settled.

British Columbia

R. C. Abbott, Coast's Market Commissioner

There has been quite a brisk demand for fresh fruits in Vancouver lately (June 17) and sales have been heavy in all kinds, with the exception of gooseberries. Reports show gooseberries to be a heavy crop and growers would do well to consider the advisability of selling to the canneries and placing only a very limited amount on the market, as the high price of sugar will retard the sales to some extent.

The demand for rhubarb is well over. Some of the growers have been shipping in a new kind of box, which is about three inches longer and two inches shallower than the box used by the majority of the growers. This new box holds around 35 to 37 lbs. nett, and in our opinion should be discarded and only the one size box used (20 ins. x 15¾ ins. x 7¾ ins).

Strawberries from local British Columbia points have been coming in in limited quantities. Imported berries from White Salmon Valley and Puyallup, Wash., continue to come in, and the prices quoted will, no doubt, have a tendency to pry down the price of British Columbia berries. The majority of restaurant managers and retailers now demand British Columbia strawberries, and give our berries the preference whenever they are packed and graded properly.

My office will distribute five thousand pamphlets next week, advertising our British Columbia strawberries. Each of the domestic science classes in the city is being furnished with one crate of British Columbia strawberries for class work. Some of the above pamphlets, which contain considerable information, will be distributed amongst the school children.

Buying potatoes for Eastern markets was very brisk from June 1st until June 14th during which time some thirty-five cars were sent out of the province. These markets have again weakened, owing to shipments of new potatoes due to arrive from Virginia in about ten or fourteen days' time.

Ten cars have been shipped east from the storages in this city during the week. There are approximately fourteen cars still in the city. The local market is not likely to improve as long as growers continue to ship in small lots on consignment. Growers who have small lots to sell would no doubt do better if they would assemble

their stocks at one point, in order to enable buyers to make up car lots. A number of growers who recorded their stocks with this office during the past two weeks have sold their potatoes direct to Eastern buyers for $5.00 to $7.00 per ton higher than those who sold independently. New potatoes are coming in in small lots. Reports received would indicate these to arrive in quantities about July 20th to 25th.

Niagara District Notes

F. G. H. Pattison, Winona, Ont.

June has been characterized by excessively cool and wet weather, which has made it hard for fruit growers to get their work done. Cherries, plums and apples seem to have suffered most. Small fruits have done well. Most of them never looked better. We only need a continuance of the weather we are now getting to ensure a bountiful crop of berries of all kinds.

The following is an estimate of the present state of the fruit crop in the Niagara belt (June 23rd). Strawberries began to come on the Hamilton market on June 13th, and by the 17th were in good supply. The sample, however, was very poor, small and half-green, only ripened on one side, owing to lack of sunshine. Later berries, however, will be a good sample, and a heavy crop, provided only that a reasonable amount of sunshine is forthcoming. Red and black currants, and gooseberries promise a full crop. Raspberries and blackberries were considerably winter-killed in places, but apart from that, they also promise a good crop. Sweet cherries are not more than from 30 to 40 per cent. of a crop. Sour cherries are better. Early Richmonds, 25 to 40 per cent.; Montmorencys, 50 to 60 per cent. Japanese plums have suffered badly; they are not more than from 10 to 25 per cent.of a crop. Other plums are as follows: Bradshaws, 80 to 100 per cent.; Washington, 30 p. c.; Lombards, 40 to 60; Reine Claudes, 30 to 50; Grand Duke, 25 to 30; Guii, 30 to 35.

Peaches are nearly a full crop of all varieties, except in orchards that were not sprayed early with lime-sulphur. In such orchards the crop has been much reduced. Even in well-sprayed orchards, curl leaf has been present, but in the others it has been very bad. There has also been some black aphids attacking sweet cherries. Pears have also suffered from the weather. Bartletts, 80 per cent. of a crop; Duchess, 25 to 30 p. c.; Anpons, 60 to 70; Keiffers, 50. Grapes look healthy, and have made a good growth. They are now blooming freely, somewhat later than usual. Apples above the mountain have not set well, and are likely to be light. Below the mountain they are better. Early and fall varieties promise well; winter varieties, medium.

On the 31st of May last, a deputation from the Niagara Fruit Growers' Publicity Association interviewed the Lincoln County Council, at St. Catharines. President Fairbairn, of Beamsville, gave a short review of the work done last year, and asked the Council to make a grant to the Association this year. He stated that the advertising this year would be doubled, because of the excellent results obtained last year.

The Association has adopted a label, and will sell it to fruit growers, with the hope of improving the grade, and standardizing the pack. The Association asked for a grant of $300. Messrs. Sheppard, W. H. Bunting and F. M. Clement spoke of the work done, and to be done, by the Association. Mr. Clement pointed out that the labels will be numbered,

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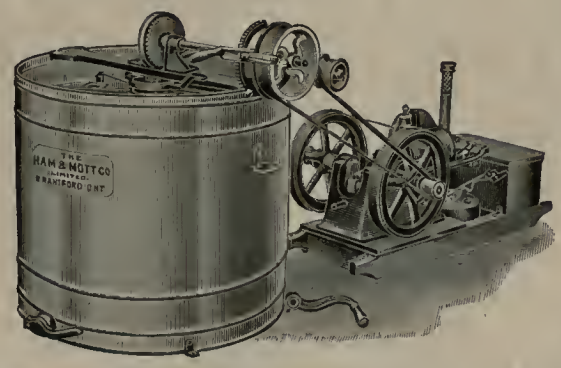

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and the Secretary keeps a record of these numbers, so that every grower having labels will be known. Secretary C. E. Fisher thanked the Council for their last year's gift, and pointed out the needs of a larger grant this year. A grant of $150 was made, the same as last year. The Lincoln County Council has also made a grant of $500 to obtain the services of a District Representative, who will shortly be appointed by the Ontario Government.

The Dominion Canners' Co. has been working on several orders for canned vegetables for the military forces. The most important of these was from the British War Office, for canned baked beans. This order is reported to run better than 7,500,000 cans.

The embargo placed by the British Government on imports of canned fruits, vegetables, etc., has been raised, insofar as it affects these imports from British dominions. This is of great importance both to canners and producers.

A recent report from Burlington says that owing to the heavy rains, plums, peaches and cherries have been badly injured, and the crop much lessened.

I understand that the Experimental Farm, Vineland, has an excellent crop of fruit this year. This farm has greatly improved, under the directorship of Mr. Clement, who has accepted a position as chief horticulturist with the new University of British Columbia. Mr. Clement will not leave before the end of August. The fruit growers of the Niagara District feel that they are sustaining a severe loss in the departure of Mr. Clement. He has not only done excellent work on the Farm, but has also been of great assistance to them in other ways. His successor will have to be a good man to measure up to the standard set by Mr. Clement.

The wet weather has seriously interfered with tomato planting. On well-drained, sandy or gravelly land the plants were got in early, and look well, but on much other land they were not got in till quite late, indeed, there are a number to go in yet. In consequence, the bulk of the crop will be late, and the crop is likely to be under the average.

Prof. Caesar, of the O. A. C., Guelph, has taken up his quarters for the summer upon a fruit farm two miles west of Grimsby. A number of experiments are being conducted under his supervision in the local orchards. One of considerable importance is the careful testing out of the new blower for applying lime, sulphur, arsenate of lead, etc., in powdered form to cherries, plums, pears and apples.

Early in June a deputation of the leading manufacturers of native wines in Ontario, called on the Ontario License Board and pointed out that to require them to sell their goods at the place of manufacture, would lead to the establishment of small factories in the large cities, with a consequent depreciation in the quality of the product, since the proper place to make wine was as near the vineyards as possible. The Board gave them no assurance, but it is likely that some concession in the way of permitting them to establish agencies in the large cities for the sale of their product, will be made.

Curl leaf is reported to be bad around Vineland, 40 to 50 per cent. of the peach orchards being seriously affected by it.

Mr. Boyle, who has been superintendent in the Bell Fruit Farm canning factory at Grimsby for some years, has gone to Essex County to become manager in one of the Dominion Canners' factories there.

Fruit Inspection in the East

G. H. Vroom, Chief Fruit Inspector for the Maritime Provinces.

Previous to 1913 the inspection of exported fruit was done at the shipping ports when it was being transferred from car to ship. This method was not satisfactory for the reason that when ships were loading there was a grand rush to get the cars unloaded as quickly as possible. The inspector did what he could while the fruit was passing between the car and the ship's hold. If he found a barrel falsely marked, the chances were that all the other barrels belonging to the same lot were by that time on board the ship. While the inspector had the right to hold shipments until he had completed his inspection he did not care to do so when the thermometer registered zero or below on the dock and there was danger of serious damage to fruit.

During these years of inspection at the shipping port two inspectors were employed in the Annapolis Valley where the bulk of

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where please write him.

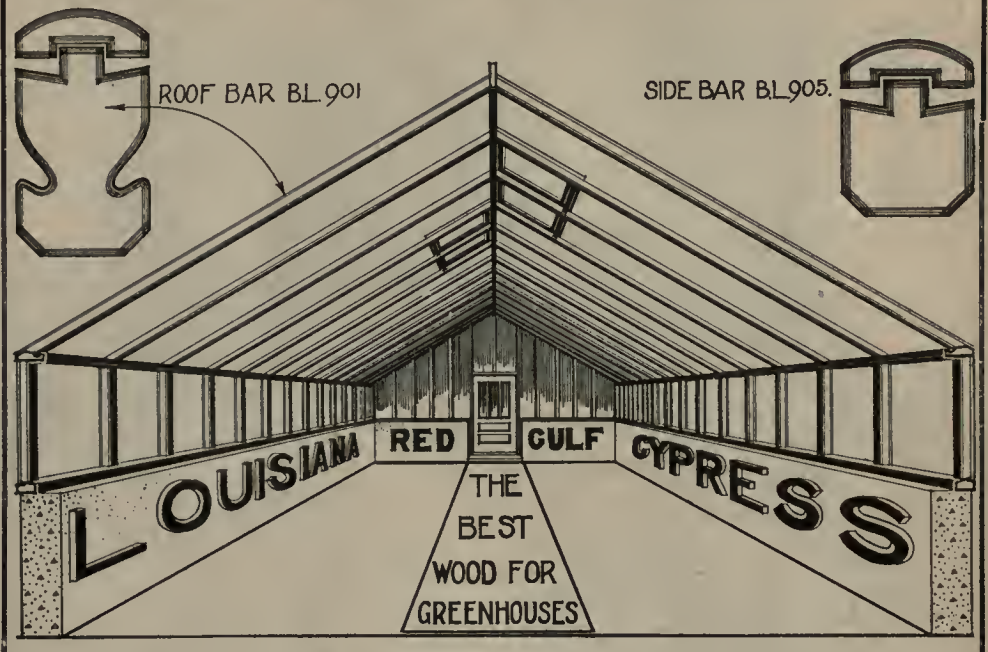
the fruit was grown. These inspectors traveled from place to place visiting fruit houses, giving instructions and incidentally notifying the inspectors at the docks when they had reason to believe that improperly packed fruit was being shipped, also from what place it was being shipped and the car number. This enabled the men at the dock to more quickly discover poorly packed fruit.

Now things are different. Nearly all the inspection is done at the point of shipment, that is at the fruit house or orchard when the fruit is packed. The fruit growing district is divided into sections. We have one hundred and ten large packing houses and each inspector is assigned a section embracing a number of these houses. In the early part of the season he visits orchards where fruit is being packed.

These inspectors are constantly on the move and visit all points in their section as often as possible. They inspect fruit any where they find it ready for market and forward their reports direct to the office of the Fruit Commissioner at Ottawa. Instruction is our strongest point. Inspectors act as instructors as well as detectives. We find that the percentage of growers who are dishonest when once they thoroughly understand how fruit should be packed, is very small. The fact that fruit was never better or more honestly packed than it was last year is a strong argument in favor of inspection at the point of shipment, where instruction can be given to the men in the fruit packing houses.

Leamington new cabbage has appeared on Toronto market, and sells at $1.50 per bushel. Leamington hothouse tomatoes and cucumbers have been a feature on that market for some time.

GREENHOUSES



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Fruit Crop Prospects

The following information, received by telegram, at the office of the Dominion Fruit Commissioner, Ottawa, June 22, outlines the present apple situation in Ontario and Nova Scotia:

Ontario: In the Georgian Bay district apple trees are in good condition. The fruit has set well, and the weather is favorable. There is some danger of the trees being overloaded, and the fruit consequently small. This danger may be offset by a heavy "drop" in the near future. Very little spraying is being done.

In Western Ontario considerable scab is showing, and there is a prospect of much damage from this source. The crop will be good where spraying has been thorough, but it is generally feared that there will be a great deal of worthless and low grade fruit. A heavy drop is now taking place in unsprayed and insufficiently sprayed orchards. In Prince Edward County there is more spraying than usual, and the fruit is apparently setting well.

In the McIntosh and Fameuse section of Eastern Ontario scab is developing to a remarkable degree and has caused considerable dropping. No positive estimate of total crop can yet be made.

Between Toronto and Hamilton there will not be more than a 50 per cent. crop. Baldwins give best promise; Spies and Greening light. Scab is prevalent. Some well drained orchards promise a fair crop.

Nova Scotia: Conditions are generally favorable in the Annapolis Valley. Apples are setting well and promise a larger crop than was expected a few weeks ago. Weather conditions are good, and there is practically no fungus showing as yet. It is estimated that there will be 70 per cent. of a full crop, or slightly more than one million barrels. Gravensteins and Nonpareils are heavy, Baldwins and Kings medium, Starks and Blenheims light.

Annapolis Valley Notes

Eunice Buchanan

The weather during blossom time was about ideal for the setting of fruit in the Annapolis Valley, and there is plenty of moisture in the soil. Cherries, small fruits and some varieties of pears had an abundance of bloom, but reports from the apple orchards varied. On some farms the blossoms were very good, on others the Gravenstein and Ben Davis appeared light, and from several quarters orchardists complain of a scarcity of bloom. The present conclusion is, there may be an average crop. The first Gravenstein flowers opened on May 30th, they unfolded slowly this year.

Aphis were found to be plentiful on some apple trees on May 7th. Nests of American tent caterpillars were found at the end of May.

The first sprayings began about May 9th, and by June 3rd several orchardists had completed the second spraying. Hand-pump sprayers have almost disappeared, the power being replaced by different makes of gasoline engines, or various types of compressed-air sprayers. Lime-sulphur is still to the front in many localities as a summer spray, but an increasing number have gone back to bordeaux mixture, because they believe it to be less injurious to foliage.

The present price of apple barrels is cheap, twenty-five cents each, cash in fall to those whose credit is good.

Some people still believe in planting apple trees, though, of course, the uncertain war conditions and shortage of men have deterred many from setting new orchards. One nurseryman near Berwick has sold over three thousand apple trees; another has sold eight hundred, and a third has sold one hundred, besides using a total of nine hundred trees to increase their own acreage.

The price of locally grown clover seed is thirty-five cents per pound. This is used as an orchard cover crop.

Fertilizers like most things have increased in price. Ground limestone in bulk loaded from the car is $4.50 per ton (cash), slag $15.00 per ton, nitrate of soda $72.00 cash, per ton. Muriate of Potash is being bought from farmers in single bags or more at the rate of $175.00 per ton.

Spraying materials also have advanced in price. Last year copper sulphate could be bought for 8c per lb., this year it is 18c per lb. Lead arsenate is 8½c cash.

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OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto Market, we have established branch warehouses with competent men in charge at **Sudbury, North Bay, Cobalt, Cochrane and Porcupine.** In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

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88 Front St. East, Toronto

The Refrigerator Car Service

G. E. McIntosh, Forest, Ont.

The supply of refrigerator cars was a serious matter to fruit growers a few years ago, and while even now there are times when considerable delay is experienced, yet the service has greatly improved. Realizing the importance of having cars when the fruit is ready to move, I have endeavored on behalf of the Ontario Fruit Growers' Association, to impress this upon the railway representatives, and have the past two years been able to supply them before the rush comes, with a fair estimate of the number of cars that would be required and the probable shipping period at each point. This has been appreciated by the railways, and they have assured me that it is a great help in arranging for an adequate supply of cars.

One of the railway companies which fruit growers criticized two years ago for having gone behind in its refrigerator car equipment from 955 cars in 1908 to 941 cars in 1912, is to-day credited with having 1,990 refrigerator cars, while other lines have also made some increases, there being 4,716 refrigerator cars to-day, compared with 2,466 in 1909. It requires an equivalent of say 100,000 cars to market the fruit and vegetable crop of Ontario. These cars have an average haul of 216 miles. The total box and refrigerator car equipment of all the railways operating in Canada is 151,323, so that approximately two-thirds of the entire freight car supply would be required to move the output of this great industry.

In 1914 during the apple movement in Ontario more refrigerator cars were required for fruit than all the Canadian railways possessed. However, we appreciate the fact that the supply is now being increased. In 1909 there was one refrigerator car for every 2,023 of the population. To-day there is one for every 1,696 of the population.

The McIntosh Apple

C. B. Hutchings, Macdonald College, Que.

The headquarters for the production and marketing of the McIntosh apple are in the province of Quebec. It thrives best along the banks and streams of the St. Lawrence River and will be found in every orchard, small and big, growing beside its celebrated ancestor the Fameuse.

The supply of this apple has not kept pace with the demand. Prices are good and steady. No. 1's in boxes readily bring $2.50, while the same quality in barrels are bought for $4.50 and $5.00. In the face of these facts of steady demand, good prices and the excellent qualifications of the fruit, it is strange that the supply is so limited. An investigation into this matter, made by the Quebec Pomological Society in 1912 and 1913, proved that the orchards of the majority of the farmers and fruit growers were grossly neglected. With but few exceptions, such as at Abbotsford, Sherbrooke, Farnham and Knowlton, and some of the larger commercial orchards, the trees were left untouched. Very little cultivation or pruning was done. Few men did any spraying and still fewer considered the all important matter of grading and packing. The fruit was often sold on the trees to the first buyer who came along, or disposed of to middlemen. A lack of unity, ignorance and carlessness were found to be the three main reasons responsible for this unbusinesslike condition.

Something should be done to arouse our Quebec fruit growers to their responsibili-

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Wholesale Fruit, Produce and Commission Merchants.

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We want Consignments
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88 Front St. E., Toronto, Ont.
Wholesale Fruit and Produce
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WANTED

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Our Annual Exhibition and Fall Packing Number
PUBLISHED SEPTEMBER 1st

This is our big fall special which comes out in time to catch the Canadian National Exhibition and other fall fairs. Just the issue in which to bring your products before our fruit growers when they are buying their fall supplies for home and business.
Reserve space early. Last forms close August 25th.

THE CANADIAN HORTICULTURIST, - Peterboro, Ontario

ties and to the excellent opportunities which they are daily neglecting and throwing away. They have a high class apple in the McIntosh, the Montreal market is close by, there is a steady demand for high class fruit and a good price for it when it goes on the market. It remains for the grower to produce the quality and the quantity if the McIntosh is to be a good commercial proposition.

To produce the quality it is essential that the orchards be carefully attended to. The trees should be at least 30 feet apart, both ways, and a good system of cultivation and draining observed. Careful pruning and systematic thorough spraying at the proper seasons should be carried out. When the crop is ready to harvest, the trees should be carefully gone over two or three times, and the fruit graded and then honestly packed into boxes and barrels properly and clearly labelled. Cooperative societies should be organized in every district and cold storage plants erected at convenient centres, arrangements should be made with the railway and express companies for better transportation and lower rates. Instead of getting 24% of production of No. 1's as is now the case, the farmer should then be able to get 70% to 80%, and instead of selling his fruit on the trees to a travelling buyer at a low rate, he would do his own packing into neat boxes, selling direct to the trade and receiving as high as $2.50 per box and $4.50 per barrel.

The McIntosh can be grown over a wide range of territory, comes into bearing quickly, is a fairly late apple, and one that will keep well in cool storage. It has one disadvantage. It is subject to scab. This, however, can be overcome by spraying.

The demand for this apple is in late fall and winter, especially at Christmas and New Year; and the fact that it lends itself splendidly for marketing in fancy packages at this time, makes it a popular and profitable variety.

Instruction Work in B.C.

A number of changes have been made in the staff of the Horticultural and Fruit Pests Inspection Branches, of the British Columbia Department of Agriculture, due to the reorganization of these departments. The assistant horticulturists have been appointed pest inspectors, combining the two activities which naturally dovetail one with the other. In each of the Assistant's districts, Inspectors acting under their direction are appointed, and these inspectors perform inspection-work and such horticulture duties as the horticulturists in charge direct.

Mr. E. W. White, B.S.A., is the Inspector for Vancouver Island, and has been busy with three spraying machines trying to control the California pear-thrips in the most seriously affected orchards of the Royal Oak, Gordon Head, and Keatings districts in cooperation with the growers. There are also the codling moth, bud-moth, strawberry weevil, and various aphis problems to be dealt with.

In the Cowichan district, Mr. R. Glendenning, of Duncan, is Acting-Inspector in charge of control measures for the widespread "black-currant bud-mite" infestation.

Mr. R. C. Abbott, Coast Markets Commissioner, Vancouver, has been appointed an Inspector and has been placed in charge of the inspection of potatoes for export. He is assisted by Inspectors T. H. Bain, Chilliwack, and H. T. Thompson, Vancouver. Mr. Abbott will be in temporary charge of field

inspection work for the Lower Mainland.

Mr. H. Thornber, B.Sc., is in charge of the horticultural work on Vancouver Island and the Lower Mainland, as well as the Interior sections as far east as Shuswap and Nicola.

Mr. P. E. French, B.S.A., assistant horticulturist, has changed his headquarters to Vernon. His territory now covers the Okanagan Valley, the Shuswap Lake section, the main line east to Golden, and the Windermere Valley. The inspector in the Salmon Arm and Spences Bridge district is Mr. C. E. Barton, of Salmon Arm, who is in charge particularly of scab-control and other experimental work, codling-moth infection at Kamloops, and San Jose scale infection at Spences Bridge.

In the Vernon district the most important pest-control work is the spraying and other measures for codling-moth, in which three Department power-spraying outfits are in operation. A series of spraying experiments for apple-scab and other pests, the control of fire-blight, and the inspection of foreign refrigerator-cars for codling moth are being conducted at Vernon.

Assistant horticulturist Ben Hoy, B.S.A., has changed his headquarters from Vernon to Kelowna, and has as his territory Okanagan Centre south and the Similkameen. The inspector for the Kelowna district is Mr. Frank Cheeseboro. In this section the pest-control work is principally for codling-moth. The four department spraying outfits have been operated at Westbank. There are also limited codling-moth areas in which other methods will be used; fire-blight control, suspected San Jose scale infestation, and spraying experiments are the important matters. Mr. J. Tait, Summerland, is the inspector for this district as well as for Peachland, and is working chiefly on fire-blight.

Naramata, Penticton, and Kaleden are served by G. R. Castner, of Penticton.

The Grand Forks, Rock Creek, section is being served by Mr. E. C. Hunt, B.S.A., acting assistant horticulturist, who has also been appointed an inspector. The pest-control work centres chiefly on fire-blight.

In the West Kootenay, Mr. M. S. Middleton, B.S.A., assistant horticulturist at Nelson, has charge, as well as the Arrow and Slocan districts. An inspector, Mr. J. E.

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We ship thousands of barrels yearly to many large growers, dealers and fruit associations in Western Ontario, besides supplying 80% of the cooperage stock and barrels used in the great Eastern Ontario Apple Belt. Therefore we must give the best value obtainable. Our main plant is one of the

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Price Need Not Stand in the Way

Don't let the question of price prevent you from owning a SPRAMOTOR and getting better crops. We make a SPRAMOTOR as low as $6, and from that all the way up to $400. Our $6 outfit is as good value in proportion as the $400 machine. There's a

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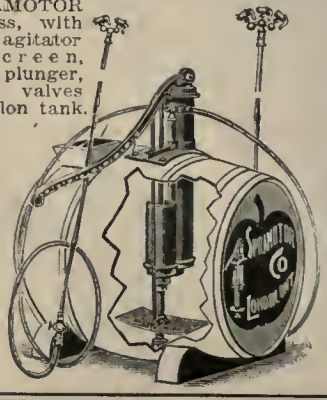
It isn't a SPRAMOTOR unless we made it

for every need—the small farmer and the thousand-acre man. The knapsack outfit at the left is all high-grade and sprays at high pressure. We guarantee it to spray paint, whitewash and chemicals. The SPRAMOTOR is all brass, with dashing agitator around screen, automatic plunger, brass ball valves and patent hand valve. In galvanized or brass five-gallon tank.



Barrel outfit consists of all-brass No. 2 SPRAMOTOR, with two 10-feet lines of hose, couplings attached, patent hand valves, two bamboo extension rods with brass cupped ends and patent drip guards, two double-nozzle clusters, complete, mounted on 50-gallon cask. Can be used for all kinds of work.

FREE Write us giving some idea of your spraying needs. In return we will mail you without charge a copy of our valuable illustrated treatise on Crop Diseases, also details of a SPRAMOTOR best suited to your requirements.

Made in Canada **No Duty to Pay**

SPRAMOTOR WORKS - 2715 King St., London, Can.

Johnson, is stationed at Creston, under Mr. Middleton, and will work principally on apple-scab control.

Items of Interest

During the last week of May the city sprayer was used on the shade trees on the streets of St. Catharines for the first time. The work was done under the supervision of Inspector Elliott, and E. H. Stork, who is experienced in spraying methods. With the aid of a gasoline motor, the spray was applied to the tops of the trees by a pressure of 250 lbs., and the trunks were also carefully sprayed. It is estimated that about 300 shade trees are affected with scale throughout the city. Last year a few trees were sprayed, and the beneficial results are very marked.

On June 17th, new potatoes and new carrots appeared on Hamilton market for the first time. The potatoes sold at $2 per basket, and the carrots at 50c per dozen bunches. Old potatoes rose to $2.50 a bag. The rains have seriously interfered with the early potato crop, and the crop is likely to be late and smaller than usual.

There have recently been substantial reductions in ocean freight rates between Canada and Great Britain, and according to well-informed shipping interests, there will shortly be further reductions, which will bring the rates 30 per cent. below what they were three months ago. It is expected that Canada will benefit by this, and that British Columbia salmon will be secured by the War Department, instead of Alaskan, and Ontario fruit instead of California.

Potash is being made on a considerable scale by a West Virginia company, from the waste stems of tobacco plants.

The New South Wales Government office in London has secured from the war office orders for some 3½ million lbs. of Australian jam. A number of the Australian states are supplying jams to the war office, but an innovation in this respect is the inclusion of melon jam, produced by New South Wales. In addition, large quantities of quince, apricot, and peach jams from New South Wales are in use by the British military authorities.

Messrs. E. D. Smith and Son, Winona, are engaged in getting out a large strawberry jam order for Great Britain.

A serious pest to the grape industry in Ohio is the grape-berry worm, a small insect which bores into the young grapes and renders them useless for marketing. It can be controlled by spraying twice. First, when the grapes are about ⅛ of an inch in diameter. 4 lbs. arsenate of lead are used with the 2-3-40 formula of Bordeaux, plus 2 lbs. of dissolved soft soap as a sticker. The second application is made about six weeks later, to kill the second brood. Hand spraying gives better results than machine work.

A Large Establishment

Members of the Ottawa Vegetable Growers' Association paid a visit, in June, to the extensive glass establishment of H. H. Wright, Aylmer, Quebec, about nine miles from Ottawa. After the Easter rush was over, several carnation houses were cleaned out and planted with 19,000 tomato plants. These were expected to mature in July, prior to carnation planting. Crops of beans and spinach proved profitable in May. The florist side of the business has been maintained, with a large spring crop of sweet peas, carnations and roses. Bedding material was almost cleaned out. Mr. Wright's plant is not confined to the greenhouses,

but comprises one of the finest farms in the district, which also is well managed. Cattle and horses are of the best kind, with all modern equipages to run a farm successfully. Barnyard manure is the principal fertilizer for the greenhouses, hundreds of tons being used. A fine collection of pheasants and peacocks forms one of Mr. Wright's hobbies. The visit was enjoyed by the gardeners. Mrs. Wright, at the close of the outdoor inspection, entertained the visitors to refreshments. The vegetable growers expressed their appreciation of their enjoyable afternoon.—A. V. Wain.

The Poultry Yard

F. C. Elford, Central Experimental Farm, Ottawa

During July, the work on the poultry plant is comparatively light, but important. The success of the year's work depends to no small extent upon the ability to rear to maturity the chicks that have been hatched and brought thus far. During this period, attention should be given to the marketing of broilers, old hens, green ducks, and the summer's egg supply. It is also the time when mites and lice thrive best and when cleanliness is most important.

Every care should be given the growing chicks, not that they should be pampered, but they should be well fed and given range on "sweet soil." The feeding need not be of such a nature that it requires a great deal of work; have some system but make it simple. Use hoppers into which mixed grain may be put, and if you have milk be sure that the chicks get all they want. With milk, extra animal food will not be required. See that the hoppers are kept filled, and if you wish to give an occasional moist mash, all right; but, if the chicks are doing well and have a good start, the hopper feed will be sufficient.

If chicks were hatched in June, get them on to fresh ground and give them extra care and feed. In addition to the hoppers, see that they have every day a moist mash—all that they will eat up clean in about half an hour. If it can be avoided, do not let the late chicks run with the larger chicks; see that the quarters are kept clean, and watch for head lice.

If all the old hens were not marketed in June, dispose of them now; if they belong to the American breeds, they are not likely to lay many eggs during the summer. It is a good plan to cull out from last year's pullets the birds that you do not intend to use for breeding purposes next year; see that they are well fleshed before they go to market.

Dispose of as many as possible of the cockerels that are large enough to sell as broilers; towards the end of this month the prices will be lower; cockerels which cannot be profitably sold should be kept to sell as roasters. Early selling cuts down the expense of production, gives more room for the pullets, and leaves the market freer in the fall for the roasters that have to be sold at that time of the year.

No matured male should be allowed to run with the laying hens during the summer. If they were not killed at the close of the breeding season, they should be done away with now. Do not continue to produce fertile eggs that spoil so readily this hot weather. During this warm weather, gather the eggs two or three times a day. Keep the broody hens off the nests. Break sitters by putting them in a feeding crate or swinging coop. Keep eggs in a cool place, and market two or three times a week.

Get the young chicks into some growing crop that will provide shade, green feed and good scratching ground. Colony houses

Protect Your Fruit

Every barrel of apples is bruised to a greater or less extent in heading. You know what this means—it causes quick rot, thus spoiling the attractiveness of the face and so depreciating the value of the whole barrel of apples.

WARNER'S APPLE BARREL PADS

placed in each end of the barrel holds the apples firm and absolutely prevents them from being bruised when heading in and shipping. It costs little and pays big. Send your name and address for sample and prices.

R. B. Warner, Inwood, Ont.

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Empire Federation Spectacle, 1,200 performers; 10 massed bands. Glorious pageant, symbolizing Imperial solidarity and power. Mammoth scenic reproduction of the British Houses of Parliament, Westminster Abbey and the War Office.

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ANMER, THE KING'S HORSE, PARADED DAILY.

Government exhibits; superb showing of live stock and agricultural products; acres of manufactures.

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THE oldest line of steel beam plows in the Dominion, made in the old Wilkinson Plow Co's factory, by old Wilkinson Plow Co. experts—every one of them men who know their business. It is **the standard line of plows** and includes 25 or more styles to choose from. U. S. S. Soft Center Steel Moldboards, highly tempered and **guaranteed** to clean in any soil. Steel beams, steel landsides and high carbon steel coulter. Clevises can be used either stiff or swing. Each plow is fitted especially with its own pair of handles—rock elm, long and heavy and thoroughly braced. The long body makes it a very steady running plow. Shares of all widths — specials for stony or clay land.

Wilkinson Plows

General purpose, light, medium, and heavy, side hill, sod, drill or one horse plows

The plow shown turns a beautiful furrow, with minimum draft and narrow furrow at finish. *Ask for new booklet.*

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Repairs for all Wilkinson Plows

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September 8th to 16th, 1916

FRUIT and FLOWERS given special attention in this year's Prize List. A "County Special" of $50.00 for fruit open to any county in Ontario. Excellent programme before the new steel grand stand twice daily.

Special Railway Rates

PRIZE LISTS, ENTRY FORMS, and all information regarding the Exhibition on application to the Secretary.

W. J. REID, President A. M. HUNT, Secretary

CLASSIFIED ADVERTISEMENTS

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign, or single letter to count as one word, minimum cost 30c., strictly cash in advance.

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YOU WANT "Reliable Seeds," get our Seed Price List and Save Money. Morgan's Supply House, London.

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ALL KINDS OF FARMS—Fruit farms a specialty. Write for Catalogue. W. B. Calder, Grimsby.

FARMS—All kinds—Fruit, stock, grain or dairy farms for sale. Also have clients with good city property who would exchange. H. W. Dawson, Brampton, Ont.

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SAVE MONEY—Get our Spraying and Garden Supply Catalog. Morgan's Supply House, London.

BEES.

CARNIOLAN, GOLDEN AND THREE BANDED ITALIANS. Bees by the pound, Nuclei. Ready to go April 1st. Write for price list. C. B. Bankston, Buffalo, Leon Co., Texas.

FOR SALE—Untested Golden Italian Queens, 60c each. J. F. Michael, Winchester, Ind., U.S.A.

ITALIAN BEES AND QUEENS as advertised on page 181. Catalogue free. Deroy Taylor Co., Newark, N.Y.

BEST THREE BANDED QUEENS at lowest prices, after June 1. Also Bees by the pound. Satisfaction guaranteed. Send for circular. J. H. Haughey, Berrien Springs, Mich.

BEES—Per pound, $2.15; per frame, $2.35; queen, $1.00. Comb foundation, light brood or extracting, per pound, 60c. Langstroth hives and frames, painted and empty (new), $1.60 each. Address Aurora Apiary, Aurora, Ont.

FOR SALE—Italian queens from the best honey gathering strains — untested queen, 75c; 6, $4.25; 12, $8.00; tested queens, 1, $1.25; 6, $7.00; 12, $12.00. Robert B. Spicer, Wharton, N.J.

GOLDEN ITALIAN QUEENS—Bred from a strain of great honey gatherers. Gentle and prolific. Untested—1, 75c; 6, $4.25; 12, $8.00; 50, $32.50; 100, $60.00. All orders promptly filled and safe arrival guaranteed. L. J. Pfeiffer, R.F.D. No. 15, Los Gatos, Cal., U.S.A.

NOTICE—Gray Caucasian Queens. Their superior qualities are early breeding, great honey gatherers, very prolific, very gentle, great comb builders, give better body to honey, very hardy, will work when other bees stay in hive, good winterers, the best all-purpose bee. Give me a trial order. Select untested, $2.00; select tested, with wing clipped, $3.00. Fay L. Barber, 290 State St., Louville, N.Y.

BEE SUPPLIES.

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1,000 GUMMED HONEY LABELS, two colors, any wording, for $1.30. Catalogue free. Eastern Label Co., Clintonville, Conn.

along the side of the root field or in the corn patch cannot be beaten. If neither is available, get the chicks into the orchard, into a clump of trees, or if you have no shade, provide some. The hot sun is disastrous to young chicks and ducks.

Early this month is a good time to plough up the runs and sow green feed, such as rape. This can be sown broadcast in the same manner as buckwheat, and it is a splendid green feed for the chicks in the fall.

Fruit Crop Conditions

The July Fruit Crop Report of the Fruit Branch of the Department of Agriculture, Ottawa, contains the following information regarding the condition of fruits in all parts of Canada:

Apples: In western Ontario there will be a light apple crop and much of the fruit will be of poor quality. East of Toronto, Spies are light, but on the whole indications point to a crop nearly medium. Duchess and Wealthy promise a heavy crop in eastern Ontario. Fameuse and McIntosh will be a full crop where orchards have been sprayed. The total crop in British Columbia is estimated as slightly larger than last year. Nova Scotia reports two-thirds of an average crop or slightly over one million barrels.

Peaches: There has been considerable damage from "leaf curl" in Niagara. The crop is estimated at 75 per cent. of last year. British Columbia reports a crop about equal to last year.

Pears: In Niagara Bartletts are a good crop; Anjou and Kieffer fair and Duchess very light. Prospects are generally favorable in British Columbia.

Plums: There will be a light crop in Ontario. There are practically no Japanese plums except Burbank. European varieties will average a half crop. In Quebec there will be about as many plums as last year. European varieties have set particularly heavy.

Cherries: In Niagara district, sweet varieties will be about 30 per cent. of 1915, and sour varieties 20 per cent. British Columbia reports sweet varieties light and sour varieties a fair crop.

Strawberries: Late varieties will be a good crop in Ontario. Warm weather is badly needed. New Brunswick will also have a large crop of good quality. A similar report comes from Quebec. In British Columbia there will be a decided increase over last year's crop.

Recent Publications

Copies of the following bulletins have reached The Canadian Horticulturist during the last few weeks:

Common Spray Materials and other Insecticides, being Bulletin No. 3, by J. G. Sanders, State Entomologist for the Wisconsin Department of Agriculture. Late Potato Blight in Iowa, Bulletin No. 163, issued by the Iowa College of Agriculture. "Potato Diseases," Bulletin No. 140, issued by the Pennsylvania State College. Vegetable Tests on Sandy Soil, Bulletin No. 136, issued by the Oregon Agricultural College, Corvallis, Ore.

TRADE MARK
Wilkinson Climax B
REGISTERED
Ensilage and Straw Cutter

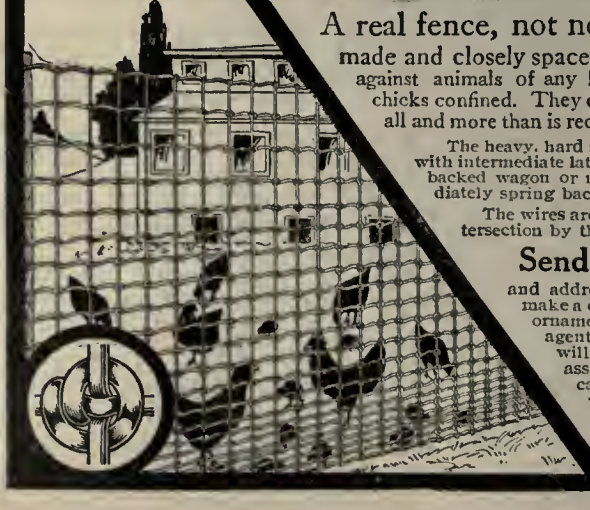
Our "B" machine, built especially for the farmer. A combination machine—it will cut and deliver green corn into the highest silo or dry straw or hay into the mow. 12-inch throat, rolls raise 6 inches and set close to knives—solid, compact cutting surface. Can change cut without stopping. Can be reversed instantly. Direct pneumatic delivery. Knife wheel carries fans. No lodging, everything cut, wheel always in balance. Steel fan case.

Made in two styles—mounted or unmounted. We also make larger type machine for custom work.

Ask your dealer about this well-known machine and write us for new catalog showing all styles.

THE BATEMAN-WILKINSON CO., LIMITED
468 Campbell Ave.
Toronto, Canada

Peerless Poultry Fencing



A real fence, not netting. Strongly made and closely spaced, a complete barrier against animals of any kind. Keeps the small chicks confined. They can't get through. Does all and more than is required of a poultry fence.

The heavy, hard steel top and bottom wires with intermediate laterals will hold a carelessly backed wagon or unruly animal and immediately spring back into shape.

The wires are held together at each intersection by the Peerless Lock.

Send for Catalogue

and address of nearest agent. We make a complete line of farm and ornamental fencing. We now have agents nearly everywhere, but will appoint others in all unassigned territory. Write for catalogue today.

THE BANWELL-HOXIE WIRE FENCE CO., Ltd.,
WINNIPEG, MAN.
HAMILTON, ONT.

The Canadian Horticulturist

Vol. XXXIX PETERBORO, AUGUST, 1916 No. 8

Co-operative Methods Not a Cure-All

H. Bronson Cowan, Editor of the Canadian Horticulturist

FRUIT growers in the east have long looked upon the great fruit growers' organizations of the Pacific Coast States as being almost models of all that fruit growers' organizations should be. The thorough manner in which they have safeguarded every step from the pruning and spraying of their trees and the thinning of the fruit to the packing of the product in neat, attractive packages, just so many apples, uniform in size and color, to the box, has been pointed out as the explanation of their ability to outsell — not undersell — eastern fruit in the eastern markets. It has come as somewhat of a shock, therefore, to many eastern growers to find that in spite of their apparent perfection of method, all things are not well with the fruit growers of the western coast states. In fact, it has seemed at times as if their situation could hardly be worse. The very prosperity brought about by their early successes has led, in a large measure, to their undoing. This success created a false optimism, which resulted in over plantings, excessive land values, increased cost of production, and ruinous competition between different cooperative organizations. This condition, in turn, culminated in glutted markets, and such low prices for fruit that thousands of fruit-growers have been ruined and large areas of fruit trees cut down and the land devoted to other crops.

So serious did the situation become that early last fall growers, selling organizations, bankers and commercial clubs in the northwest sent hundreds of telegrams and letters to the Department of Agriculture at Washington, urging them to have the Office of Markets come to the assistance of the fruit industry. According to the Fruit and Produce Marketer, of Portland, Oregon, the department was advised that the fruit industry was in a deplorable condition, that this condition was realized by all, and that the help of the federal government was needed in order that a plan might be found that would place the industry upon a better basis. In response to these requests the department sent to the northwest three experts to investigate conditions. These men spent many days and a large sum of money in investigating every fruit section in the northwest, and calling upon the selling organizations, bankers, growers and leaders in the different communities. They thus secured a thorough understanding of the needs of the industry. With this informa-

View in the fruit lands of the St. John River Valley Fruit Company, Burton, N.B. The St. John River Valley promises to become noted as an apple producing district. It contains numerous fine orchards and the Provincial Government is making its advantages known.

tion in their possession they called a meeting of those interested and reported to them somewhat as follows:

"We find the fruit industry of the northwest to be the greatest example of disorganization to be found in the United States. The very fact that you have a number of strong organizations makes it all the worse, because it gives you larger clubs to use in your game of tearing each other to pieces. Your principal trouble is 'selfishness.' If you have a sincere desire and are willing to do certain things, we will suggest a plan upon which you can meet on equal terms and agree."

They were answered in this fashion:

"We realize our deplorable conditions and know that if we do not agree to certain practices that we will have no industry in a few short years. We therefore are here with open hearts ready to agree to any constructive plan that will assist the industry."

Growing out of this report a Fruit Growers' Agency was formed for the purpose of reorganizing the industry, harmonizing the competing interests, bringing order out of chaos, and re-establishing better conditions. It is yet too early to decide what success will attend this new effort. In the meantime we in the east may learn some valuable lessons from the conditions that have thus been revealed in the west.

Lessons For the East.

In the first place, let us note that the primal cause of the trouble in the west was SELFISHNESS. What a flood of light that one word throws on the whole situation, both east and west! The evil worm it represents find its way to the centre of every effort of man to improve his condition, and again and again thwarts his best efforts. It explains why men refuse to cooperate as long as they think they can do better for themselves in some other way; it leads men to throw down their association when a buyer offers them an extra inducement to sell outside their organization; it is the cause which prompts growers to rush immature fruit to the market in the hope of obtaining some of the early high prices; it explains why buyers so often find inferior fruit under number one grades, and makes clear the motives which prompt even cooperative associations to cut the ground from under each others' feet in their anxiety to market their products.

What are we going to do about it? In some ways there is not much that can be done. A greater than human agency is required to deal with this evil in the hearts of men. Let us, therefore, recognize this fact, and not make the mistake of thinking that the mere passing of laws or imposition of fines or attempts at unity of effort will be sufficient to overcome it. It may seem to disappear for a while, but sooner or later is sure to break out in a fresh spot. For the same reason, also, we should discourage rather than encourage the modern tendency to have ministers of the gospel devote more attention to learning methods of farming and attending short courses in agriculture in order that they may help the members of their congregations in a direct temporal way, instead of giving their full attention to the more important spiritual matters. Once ministers step aside from the main purpose of their calling and commence to fritter away their time on minor issues, that growers themselves are better able to cope with, disaster rather than benefit will be the result. Let us not, also, base our appeals for the adoption of cooperative methods so much on selfish arguments as by exalting the unselfish spirit which will lead a man to prefer to suffer loss rather than to defraud his neighbor. A cooperative organization that is held together for purely selfish purposes has the seeds of decay and disintegration within itself.

Let us not, also, make the mistake of expecting too much from the adoption of cooperative methods. These are important, and are always the first and absolutely essential step forward towards better conditions. They are only, however, a means toward an end. Even were all our fruit growers to fertilize and cultivate their land, prune, spray and thin their fruit and cooperate in its sale, other and still larger problems would remain to be solved. We would still have to deal with the possibility of over production, the increasing cost of land and all kinds of supplies, the growing poverty of the masses of the people in our cities with the consequent reduction in their purchasing power, as well as competition with other classes of products. It is true we cannot deal with all these questions at once. One step at a time is the safe and ordained method for all of us. Let us once recognize, however, the necessity for taking further steps, and we will not make the mistake of being too optimistic concerning the benefits likely to attend the taking of any one or even several steps. Some of these other issues we trust will be discussed in future numbers of the Canadian Horticulturist. The broader the viewpoint we have when dealing with these problems the safer and more permanent will be the progress made when dealing with them.

The box is the coming package, for most varieties at least. It is easier to pack; easier to handle in the orchard, on the train, or in the home of the consumer; it avoids bruising, and it enables a householder, who does not want to buy more than a barrel at a time, to have three varieties in his home at a time.

Each little job takes time and costs money. Covering the fruit baskets on the fruit farm of F. Bell & Sons, Burlington, Ont., preparatory to loading for market.

Cranberry Culture in Nova Scotia

A. J. Campbell, Halifax, N. S.

THE culture of cranberries began about twenty-five years ago in Nova Scotia. Cranberries have always grown wild here, and when it was found that the removal of weeds and grass made the vines more vigorous and enlarged the yield the owners of cranberry bogs were encouraged to cultivate the berry. In the course of time a regular industry in cranberry growing was established throughout the Province, but it was in Kings county that most progress in planting and production occurred.

Among the growers at Auburn, Kings county, is Mr. H. S. Bishop, who is considered to-day an authority on everything pertaining to cranberry growing. "Many parts of Canada," said he, "abound in tracts of land varying in area which are now considered as waste, but which may be made among the most profitable parts of the farm. Wet peaty soils, of little use for other purposes, are eminently suitable for the culture of cranberries, and the expense of preparing and planting is not excessive when the length of life of the bed is considered.

"The proper soil for the culture of this berry is a peaty alluvial soil. A peat bog, if not too deep, or any black land on which wild bog cranberries now grow will present a suitable home for the cultivated berry. Beds are sometimes made on an ordinary very sandy loam, but such soil requires the annual application of commercial fertilizer, which is not required on black soil. Moreover, ordinary soil runs more to weeds than a peat soil does. A wet soil with the water just below the surface should be selected. If land of this character is ditched and drained until the water recedes to within twelve inches of the surface the results will be satisfactory.

"The first operation in preparing a bed is to strip the sod or turf from the surface sufficiently deep to prevent the growth of bushes, grass or weeds from the roots. This is generally a difficult job, as the ground is often too soft to hold a horse and is apt to contain many sticks and logs with which it is hard to deal except by hand. After the ground is cleared and levelled it should be covered to a depth of three and one-half inches, with sand free from loam or weeds. A coarse sand in which is some gravel will be suitable. Many shallow peat bogs have a deposit of sand underneath, and where this is the case the sand can be conveniently and cheaply obtained from the bottom of the ditches. After the sand is spread the rows should be marked out eighteen inches apart. This may be done by drawing over the bed an instrument made like a hand sled with two or more runners the proper distance apart.

"In starting a bed, not only is it desirable to get a variety of good quality and appearance, but they also should be prolific yielders. There is as much difference in the yield and quality of cranberries as of apples. Some of the wild varieties are good. Many of the best berries grown in Nova Scotia are native varieties. For planting cut vines are used, being the upright parts of the vine mowed from a bearing bed. These may be obtained from some reliable dealer who makes a business of supplying them. Vines for planting are from six to eight inches long, and are put up in sacks or barrels, about eight barrels being necessary for planting an acre. The process of planting is very simple. One worker drops the cuttings in the marked rows about fifteen inches apart. Another worker follows and presses a part of the cutting into the soil with a forked stick. The firming of the sand about the cutting with the foot completes the operation.

"In the after treatment of the bed weeding is the most important operation. This will not be difficult, however, if the ground has been well stripped and clean sand has been used. It is vitally important to keep down any weeds that show in order to give the vines a chance. If this is faithfully done for three years the vines will take charge and completely cover the ground by the fourth year, thus reducing the task of weeding practically to the vanishing point. By this time also the bed will be yielding profitable crops. No cultivation is required, and, in fact, it is desirable in weeding to mix the sand with the soil as little as possible. If properly brought to this point the bed is in shape for many

A measuring point for the miles by a Huron County roadway, near Goderich, Ont.

A cranberry plantation at Auburn, Kings Co., Nova Scotia.

Peach harvest in the Niagara District is a busy season. This illustration was obtained before the war had thinned out the male help which now is hard to get.

years to come, and requires little attention but picking.

"There is a very general impression that cranberries cannot be raised without provision being made for flooding, but while such an arrangement is desirable it is not essential. Cranberries are grown quite extensively throughout the Annapolis Valley, and in many cases there is no provision for flooding. Of course, if the bed can be located on a small stream flooding is then possible. A dam may be built so that the bed may be flooded to a depth of eighteen inches, with a gate that may be easily opened and closed. Water should be turned on in the spring and allowed to remain until about May 20th, so that the period of blossoming may be retarded to escape the June frost. Again, in the autumn, if heavy frost is imminent before the berries are picked, the gates may be closed in the afternoon and the bed flooded for the night. A clean sanded bed, however, will not catch the frost so quickly as a bed full of weeds and grass.

"A few words may be said in regard to the use of fertilizers. There is no use for barnyard manure in connection with growing cranberries. If the bog is made on peat or muck soil with sand on top no further fertilizer is necessary for the successful growing of this fruit year after year. If the bog is planted on a white sand flat, or where the mud is very thin and the land poor, a liberal use of any of the commercial fertilizers used for growing potatoes is undoubtedly a great benefit. The berries will be larger and the vines thriftier if from four hundred to six hundred pounds of fertilizer per acre be applied about the first of June. This should be sown broadcast when the vines are perfectly dry.

"In the earlier days of this industry picking was altogether done by hand. The bog was laid off in sections or strips of any width to suit the fancy, by stretching lines across. Each picker was assigned a section by himself, and the cost of gathering in this way varied from one to two cents per quart. Of late years this work is performed largely by the use of scoops, much more quickly and at far less cost. These scoops or pickers vary in width from fifteen to twenty-two inches, according to the number of teeth. The berries grow on the ends of the upright part of the vines. The scoop is forced into the vines just about the laterals, and as it is raised up the berries are pulled off and fall into the back of the scoop. After two or three operations of this kind, the scoop is emptied into a shallow box or basket. In this way a single operator will gather from three to ten or more barrels of berries per day where there is an ordinary good crop of fruit."

The cranberry is a cold climate plant, and will grow to perfection in Canada. It has not the same insect enemies to contend with that are prevalent in some parts of the United States, while the prices are better and the demand is practically unlimited. A well established bed will yield from fifty or sixty barrels to the acre, and the price seldom drops below five dollars the barrel. This is surely good enough for land that is practically useless for other purposes.

Mention the Canadian Horticulturist when writing advertisers.

Height of Apple Trees

P. J. Carey, Toronto, Ont.

THE proper height of apple trees is a question that is receiving considerable attention. Old trees often are beyond redemption. We have thousands of trees, however, that have had a bad bringing up and which need, and will stand, severe treatment.

In the case of young trees I am a complete convert to the low-headed trees. There is one objection to this system, that is, where there is a heavy snowfall which may do damage. Low heading gives us a lower and healthier trunk, and the tree is easier sprayed, pruned, thinned and picked. Winds do not affect them as much as the high trees.

You can cultivate low-headed trees just as closely as higher ones, as in the case of low-headed trees the limbs grow up. On high-headed trees the limbs show a tendency to grow straight out and droop. When trees come in bearing it is not necessary to cultivate close to them.

The training of the tree is everything. We have trees that are up in the air, due generally to their having been planted too close together. I have seen thousands of trees in orchards that were planted too close. In one large orchard, planted some twenty years ago, about eighty per cent. of the trees are to be taken out.

It is a bad thing for a tree to dehorn it. This operation should be done only as a last resort. Sometimes it is necessary. Bring a high tree down to not over twenty feet, and, better still, fifteen feet. If you want to cut a tree down eight or ten, or even twelve feet, and there is a large upright limb near the centre, cut it back at the juncture or joint with the main tree. In a short time it will be full of new growths.

The first principle in lowering a tree is to cut down the upward growth. On side growths the fruit tends to bear down the limbs. Always cut a limb vertically, so that the water will not rest in the cut and cause a cup to form.

In the case of San Jose Scale I have seen a tree cut down, renewed, and a new head formed. Where the new growth forms it can be thinned out and trimmed.

Speaking of the possibilities of orchard products an old nurseryman says where a dollar's worth of fruit was consumed ten years ago, ten dollars is wanted now. Unless all signs fail, one hundred dollars' worth will be required in ten years from now.

Thinning Fruit

THOSE fruit growers who have not yet attended to the thinning of their fruit should not neglect it longer. To do so, where heavy crops are promised, may mean broken limbs, split trunks and weakened trees. Vigorous thinning should be begun before the fruits attain size and weight enough to begin bearing down the limbs of the trees.

As regards the number to be left much depends on the strength of tree and branch. As a general rule, however, even the most perfect fruits should not be too closely packed, as one nice specimen is preferable to six half grown. Apples may be left nearer than pears, cherries nearer than plums, while for the best results peaches should not be nearer than six inches to one another. Apples should be thinned, leaving only one fruit to a fruit spur and the fruit from four to eight inches or ten inches apart, depending upon the variety and the tree.

Unless each peach tree is allowed enough space to develop to its maximum there will be a quantity of second grade offered for sale. In thinning, always take off those which are misshapen or injured by insects, leaving only first-class fruit. A tree which is loaded will, if it is thinned, produce as many baskets of fruit as one which is not so thinned, but the one which is thinned will produce more first-class fruit, while the other will have a quantity of small and second grade peaches. It is easier to pick and drop small green peaches on the ground than it is to pick those same peaches later and put each one in a basket. The cost of thinning any kind of fruit (apples, pears, plums or peaches) is more than made up by the time saved in harvesting and grading, and also by the increased price of the greater amount of first grade fruit.

Spray Late Potatoes

P. J. Carey, Toronto, Ont.

DAMP weather, such as has prevailed this season, is almost sure to cause trouble among the late potatoes. It should pay well, therefore, to give special attention to the matter of spraying. Numerous tests have proved that the timely and thorough spraying of late potatoes pays even where disease is not prevalent.

To make Bordeaux mixture for spraying, carefully slake four pounds of quick lime, mix with water to a cream, strain into the spray barrel and half fill it with water. Dissolve four pounds of copper sulphate (best in granulated form) in four gallons of water (hot water works quicker) and pour slowly, with constant stirring, into the spray barrel with water, so that by the time the copper solution is poured in the fifty-gallon barrel is full.

If much spraying is to be done, stock solutions of lime and copper sulphate may be made, thus avoiding the preparation of small lots of material. The stock solutions are made by slaking sufficient lime for one spraying and diluting with the same number of gallons of water, also dissolving the required amount of copper sulphate and diluting in the same proportion. These solutions can be kept separately for an indefinite time and can be used by measuring four gallons of each and proceeding in the manner described.

"Peach time" in the orchard of Wm. Webb, East Hamilton, Ont.

Cherry Trees

The cherry tree will thrive on light, well drained loams. The fruit likes an elevated, naturally light, dry, loamy, retentive soil. The sour cherry tree will stand a heavier soil.

As the sour cherry tree does not grow very large, it is best to plant it sixteen and a half feet each way, thus making one hundred and sixty trees to the acre.

Cherry trees can be successfully top grafted, if one desires to change the varieties in the orchard for more profitable ones. This sort of graft will succeed without any difficulty, if it is performed early in the spring, before the slightest swelling of the buds, and even before the frost has disappeared from the ground. After this period, difficulty will be experienced.

Black knot in cherry trees is the worst disease of all. The only remedy I know is to cut away the branch whenever it appears.—Rev. Father Leopold, La Trappe, Que.

A fruit dray on the fruit farm of E. M. Smith, Winona, Ont., loaded for the railroad station.

When peach trees have attained a size that necessitates a ladder in picking the fruit, I begin to prune and keep the fruit producing wood close to the ground. Keep the trees low down so they can be readily sprayed without any great derrick to get at the topmost branches. I find my trees are hardy and I have a good sample of fruit from trees handled thus. J. O. Duke, Ruthven, Ont.

The Pleasures of a Home-Made Greenhouse

Geo. Baldwin, F.R.H.S., Toronto, Ont.

THERE is satisfaction, pleasure and often profit in the possession of a modest green-house, even though it may be of your own construction. Their erection may be accomplished with so little effort and expense it is a wonder that more people do not have them. The one shown in the accompanying illustration is nine feet by fifteen feet, inside measurement. Before giving particulars of its cost and construction. I would like to describe the possibilities of such a green-house.

About the first of March the seeds of flowers and vegetables to be grown in it may be sown in pans and flats. The seedlings are pricked out into other flats, and placed on shelves as close to the glass as possible. These are kept growing on until the end of May, when it is time to transplant them to the garden. The shelves are removed, and the side beds made ready for the cucumbers and tomatoes. The long cucumber "Telegraph" is trained up wires on the south side of the house, close to the glass until it reaches the peak, when the heads are pinched out. This makes the plants bush out. Cucumbers require more sun than tomatoes, so the latter are planted on the north side, and trained up wires in the same way as the cucumbers until they meet at the peak of roof, when they too are pinched at the head.

Having fifteen feet of space, five plants of each can be grown without crowding. The accompanying illustration of the cucumbers growing gives an idea of the system followed, and the quality of the plants. Along the bottom there are two discharge pipes, one and a quarter inches in diameter. The return pipes are under the perforated board on the extreme right, and are used for heating in the winter. The tomatoes are as prolific as when grown outdoors, they are three weeks earlier and of much better flavor, to my taste. The only things to worry about in a small house like this are the ventilation and spraying the cucumbers with cold water three times a day. Take care not to let the spray go near the tomatoes, as it has a tendency to make the fruit split. Water them only at the roots when required. One hundred and twenty-seven cucumbers and three baskets of ripe tomatoes were taken from this little green-house last year.

While this is going on, chrysanthemums are being got ready, which will give hundreds of bloom during October and November. I hold two silver medals won at the Ontario Horticultural Exhibition, for chrysanthemums grown in this house. The rest of the time can be devoted to the growing of salads, and taking care of plants for the following year.

This statement will, I trust, convince the most sceptical that profit, combined with pleasure, may be obtained from such a green-house. Its construction was simple. Enough second-hand bricks were obtained to build the walls, eighteen inches below the ground, and two feet above. The rafters and glass were bought second-hand, when a city florist pulled down his green-house in order to build elsewhere. It is heated with a No. 10 Jacket hot-water heater, made by The Dominion Radiator Co. The pipes and boiler cost twenty-eight dollars. Two coats of paint completed the construction, for a total outlay of sixty-four dollars. I did the work myself, with a little assistance from a neighbor, in cutting and screwing the one and a quarter inch pipe used for the radiators. If you continue growing vegetables all winter, two tons of nut coal, at eight dollars a ton, will be required, otherwise less than a ton will give you all the heat required for the chrysanthemums in the fall, and raising seeds in the early spring.

It is not too late to put up trellises or stakes upon which to train tomato vines. Stakes, as a rule, do not allow the plants room to spread out enough. A convenient form of trellis is made from a barrel hoop with two or three stakes nailed to it, so as to lift it eighteen inches or two feet from the ground. A second hoop may be also nailed to these stakes for extra large or unusually small growing varieties. A hoop is placed over each plant, the branches of which are allowed to hang over the top.

One of the quickest-growing dwarf annuals is sweet alyssum. Sow the seeds as soon as the ground can be worked in spring and you will be repaid with an abundance of snowy-white sweet-scented flowers.

This simple and inexpensive homemade greenhouse, owned by Mr. Geo. Baldwin, of Toronto, has produced large quantities of flowers, vegetables and pleasure for its owner. Note what Mr. Baldwin says about it in the article on this page.

The Garden of a Summer Cottager

By the Late W. J. Stubbs, Peterboro, Ont.

"From shapeless roots and ugly bulbous things,
What gorgeous beauty springs!
Such infinite variety appears,
A hundred artists in a hundred years
Could never copy from the floral world
The marvels that in leaf and bud be eurled."

—Ella Wheeler Wilcox.

"Come into my garden and sit with me," is an invitation seldom given in Stoney Lake, for the very good reason that gardens are a luxury in that part of Kawarthadom. They are about the only thing lacking in the equipment of the ideal summer homes that there abound. Therefore, those who are the proud possessors of a productive plot of ground, whether natural or artificial, enjoy it to the full.

One of the most unique, and at the same time the most extensive gardens in the Kawartha Lake District is that in connection with the beautiful summer home of Mr. James Eakins, near Mt. Julian. It has for its presiding genius Mr. G. E. Oxley, Mr. Eakin's son-in-law.

Five years of careful study and planning on the part of Mr. and Mrs. Oxley, have transformed the virgin plot into a most charming spot. Irregular mounds of earth have been levelled, and valleys filled in, until the greater part of the property, consisting of over nineteen acres, reflects the general scheme of transformation so ably carried out.

The bungalow, thoroughly modern in every respect, faces the large expanse of water in Stoney Lake towards Juniper Island and Eagle Mount, while the garden lies to the rear, and is separated from the "cottage" by a narrow inlet, which is spanned by a rustic bridge one hundred and ninety feet long, lighted by acetylene gas from a one hundred and twenty-five light system.

Mt. Julian, up which the property extends to within sixteen feet of the summit, not only provides protection from the north and east, but creates a gentle slope to the south and west, and gives the necessary elevation for a huge water tank, containing four thousand two hundred gallons, with a forty pound pressure in a distributing system of one thousand eight hundred feet of iron piping, and two hundred and twenty-five feet of garden hose. Water is forced up the mountain by a hydraulic pump, driven by a three and a half horse-power gasoline engine.

The first evidence of the great abundance of flowers grown last summer, was a large bed of gladioli, containing one hundred and sixty bulbs of four main varieties, located north of the cottage; but not till the rustic bridge was crossed and a winding path threaded, did the full beauty of the situation flash upon the visitor.

The view that greeted the eye was one not soon forgotten. Stretching out in a fine sweep towards the mountain, was a tennis court two hundred feet by sixty. To the right, along the south side, and up the east end, extended a thick border of the stag-horn sumach. To the left a few large maple trees and an open view of the lake and Mill Bay. On the opposite side ran a border of perennials two hundred and forty feet long, (with a cedar hedge as background) containing a wealth of color in forty-nine varieties, with crimson, lavender, blue and white predominating—but no red, that color being fully represented in the rose garden to the left of the tennis court.

The rose garden measured sixty by eighteen feet, and contained one hundred and sixty bushes: seventy Killarney brilliants and whites, fifty Richmond reds, twenty Royal Sunsets and twenty Madam Tafts. The rich glowing shades of brilliant searlet, and sparkling white and pink, and the pungent perfume made one think instinctively of some of the noted rose nurseries. Over two thousand blooms were taken from this bed alone last season.

Beyond the perennial border and cedar hedge lay the vegetable garden,

Cucumbers grown by Mr. Geo. Baldwin, Toronto, in his homemade greenhouse. See article on other page.

systematically arranged to produce the best results. Another border of flowers extended along the garden side of the hedge, consisting of zinnias,

A spot where flowers bloom in Mr. Eakin's Stoney Lake garden.

Climbing roses and larkspur in the garden of Mr. J. H. Bennett, Barrie, Ont.

verbenas, petunias, stocks and English honeysuckle, while the other side of a narrow grass path was edged with blue lobelia.

The sight of the garden would warm the heart of any vegetarian, with its generous quantities of beets, peas, beans, carrots, turnips, radish, parsley, spinach, onions, Swiss chard, koli, tomatoes (cultivated up a single vine), asparagus, celery, cabbage, Brussels sprouts, red and green peppers, horse radish, parsnips, citron, black, red, and white currants, gooseberries and rhubarb. Besides these there was a large plot devoted to potatoes and corn.

The border of perennials, however, was the feature of this beautiful garden in which Mr. and Mrs. Oxley took great pride. The rich blue tones of the anchusa Italica, with its large pyramidal, graceful spikes of flowers, of the lobelia, and salvia (meadow sage), of the hybrid delphiniums (larkspur), and of the platycodon (Chinese bell flower); the pure, glistening white of the cimicifuga simplex (snake root), of the digitalis (foxglove), of the achillea (milfoil), of the shasta daisy, Alaska variety, of the chrysanthemum, and of the gypsophila paniculata (baby's breath), with minute, gauze-like flowers, and the exquisite combinations of blue and white in the clematis and campanula (Canterbury bells); blended in perfect harmony with those other varieties of myriad coloured flowers interspersed among them, such as the poppy, stocks, dianthus, barbatus (Sweet William), hollyhocks and phlox; while the pronounced yellow of the coreopsis lanceolata grandiflora, helenium (sneeze wort), heliopsis (orange sunflower) and English marigold; the gorgeous brown and crimson of the gaillardia grandiflora (blanket flower); the soft lavender of the scabiosa caucasica (blue bonnet), the delicate pink of the pyrethrum (giant daisy), and green of the mignonette, all skilfully arranged, presented a delightful study in colour effects.

Mr. and Mrs. Oxley delight in sharing the glories of their garden with their friends. Most generously they have supplied flowers to the Red Cross Association of Stoney Lake, who realized from their sale over fifty dollars. How suitable that the products of this lovely garden should be put to such a worthy purpose.

Summer Preparations for Winter Flowers

B. C. Tillett, Hamilton, Ont.

AUGUST marks the close of the construction work of the season, and in that respect may be regarded as a turning point in garden work. All the same, those who are really interested in gardening, have never finished, and if they have reached the end of one season, there is the next one to begin thinking about. Truly, it may be said, a garden is a never ending source of enjoyment. Shakespeare says, "The man that hath not music in his soul is fit for treason, stratagen, and spoils." It occurs to me that he might aptly have substituted the word "gardening" for "music," and been equally correct.

The true gardener, when August comes around, is admiring all that has been accomplished, is thinking also of the seasons before him—winter and spring, his green-house, his cold-frames, and his house. Be one's garden small or large, we get the same pleasure out of it, it, in fact, depends upon the disposition of the gardener himself, more than upon his garden. The gardener who wishes to attain the best results, and an unbroken succession of plants and flowers, is aware that during this month there are many things that must be got ready for winter and spring.

For instance, if we would save some of the fine plants we are now admiring in our gardens, so as to have them still with us when the snow is on the ground, we must be getting to work. One of the mistakes so often made in trying to save plants for the winter, is to leave them too long out of doors. Do not wait until the arrival of early frost or the first snow flurries. If you do, you will be disappointed again. The best plan is to have the plants up and potted several weeks before they really need to be moved indoors.

There is always a risk in potting a plant which is in full growth, in summer weather, and the moving is likely to prove fatal, unless we are careful. Everyone who knows anything about plants, does not need to be reminded of the enormous quantity of moisture sucked up by the numerous tiny roots. He probably knows, too, that this water passes up the stem and leaves, and feeds the plant. To suddenly deprive the plant of this, its principal source of sustenance, is to give it a great shock. The little roots are so tender and fragile, and so very easily broken, it is impossible to secure all of them when taking up the plants.

The first thing to do is to prune the plant back severely, even if it means cutting off blooms and buds. The stronger the growth, the more can be cut away. At least a half should be removed. By doing this, the amount of moisture required by the top of the plant from the roots, is reduced. The next thing is to cut around the roots with a long, sharp knife, leaving just so much of a ball of earth around the plant as will drop easily into the pots to be used. When using the knife, cut well under the plant, then it can be lifted out without pulling and tearing up the roots, which spoils the roots left with the plant.

If this work is commenced in good time, a better plan still is to do it gradually—that is to say—cut around half the plant at a time, leaving the

Double flowered dahlias. (Photo by H. J. Moore.)

other half until actual removal of the plant, a week or two later. By doing this, some new roots may form on the side which has been cut, within the earth ball, so that when the plant is potted these will be removed intact.

Before potting, saturate the soil well with water, and leave potting until the following day. Be sure and place the newly potted plants in a shady place, indeed, when possible, it is a good plan to take the plants up in the cool of the evening. After potting, do not overdo the watering, as there are not feeding roots yet to take up the water, and it only drains through the soil, doing it no good. An understanding of these simple things, and a carrying out of the advice given, will bring its reward in the shape of some nice plants through the winter months.

Nor is it too early to be thinking about the bulbs. For instance, bulbs of the Madonna lily should be planted this month, and such bulbs as are wanted for early blooming in the house, should be potted at once. Bulbs of lilium auratum, too, should be planted in August or September. Daffodils intended to be grown in boxes or pots, should be got in soon now.

I wonder whether it is known that it is very easy to grow the snapdragon (antirrhinum) in the window garden in an ordinary flower pot? Try it. The long spikes of flowers, in light and dark reds, yellows, and pure white, are really beautiful; moreover, the spikes stay in bloom quite a while, the individual flowers opening one after another. They are very hardy. The seed should be secured and sown now, or if you have plants already, cuttings can easily be rooted, but be careful to select wood for your cuttings that is not too soft.

Whichever plan you adopt, the plants should be in flower quite early in the spring. If it's to be seeds, get the new named varieties, as they are the best for pot culture. If you start a batch from seed, let the first flower open on each stalk before selecting those you wish to keep. Another plan is to transplant those you have in the garden into pots of good size. Cut out the oldest stalks in the centre, and the newest ones well back.

Increase the vitality and the fruit bearing ability of squashes, pumpkins and melons by restricting the vine growth. As a rule the vines tend to spread a great deal more than is necessary. Prevent this spreading by sniping off the tip ends of the vines, preferably with a sharp knife, close to, but just beyond a leaf stem.

Garden Suggestions for August

Henry Gibson

WINDOW-BOXES, hanging-baskets, tubs and similar devices that are used for decorative purposes around the house, will now be so full of roots, that some top-dressing, with good loam and manure in equal parts, or frequent applications of liquid manure, will be needed to maintain a strong display of bloom for the next few weeks.

Flower-beds and borders are at their best, and every effort should be made to maintain a neat, tidy appearance about the garden. Decaying leaves, weeds, litter and spent blooms should be picked up at least once a week. Grass edges need to be kept trimmed, and the lawn mowed as occasion requires.

The dahlias should be showing buds by this time. If they continue a coarse, heavy growth, without any tendency to flower, cultivate deeply so as to cut some of the roots, which will check the growth, and cause the plants to throw up flower buds. Those plants that are showing flowers, will be benefitted by an application of bone-meal or other highly concentrated fertilizer well worked in around the base. Don't be too liberal with liquid manure on the dahlias, as it has a tendency to induce too soft growth.

August is the best month of the year to set out evergreens, and one can give more attention to it at this time than at any other period of the gardening season. Any plantings of these subjects that are contemplated, should be undertaken at this time, as all nurserymen will ship the plants at this season.

Careful attention should be given at all times to see that no red spider is allowed to attack these plants, and particularly the newly planted ones. This pest is the worst enemy of evergreens, and while it is comparatively easy to control, yet nothing short of persistent effort will exterminate it. Fish oil soap, commonly known as whale-oil soap, one pound to five gallons of water is a sure remedy, but we do not recommend using it, except in early spring, before the young growth has started, or late in the summer, after the growth has become hardened somewhat. There is a danger of damaging the young growth if whale-oil soap is used during the period of most active growth. Should spider he very destructive at this time, a good spraying with clean water from the faucet will check his activities.

The value of a cold water spray as a method of controlling insect pests is not as much appreciated as it should be. Not infrequently one may have plants near the house that are attacked by some insect. To spray with some of the approved insecticides might leave an ugly spot on the paint of the house, or some other place that would stain, for it is unfortunately only too true that many insecticides do stain when they come in contact with paint and similar material. Under these circum-

The vegetables throve in this part of Mr. Eakin's Garden at Stoney Lake, Ont.

Some of the possibilities of a small backyard garden are shown here in the garden of Mr. A. W. Palmer, Hamilton, Ont. In the right foreground is shown a bed of tuberous begonias; in the right rear a rustic summer house. The centre bed contained some very fine gladioli.

stances the best means of controlling the insects is with a forcible supply of clean water from the hose. While applying it, however, it is well to use an adjustable nozzle on the hose, so that the force of water can be regulated in such a way as to avoid damaging the foliage of the plants. One may easily regulate the force, and still maintain an effective spray, with an adjustable nozzle.

The treatment just outlined for controlling insects is especially valuable on such crops as lettuce when attacked by aphis, on which the use of other compounds might make the consumer suffer a little from stomach trouble. This is true also of currants and other small fruits that are attacked just prior to harvesting. City trees, besmeared with honey-dew from aphids, may receive an advantageous cleansing from the use of the hose.

Lawns.

The proper time to reseed the lawn is a much mooted question. It is the practice of the writer to get busy as early in August as conditions will allow. Constant attention is the price of a good lawn, and one must patch up the bare spots as soon as possible. One of the reasons set forth against August seeding of lawns is that we usually have a spell of dry weather at this time. We can, however, expect rains in early September, and by seeding near the end of the month there is not much chance of failure. Last year I seeded a lawn in August, and for several nights thereafter it rained hard. A splendid lawn was the result. Weed growth is practically completed by this period of the year, so one does not find so many weeds in an August sown lawn as is usually the case with spring sown ones.

A liberal top-dressing of wood ashes and bone-meal will benefit the lawn in August. It is patent to anyone who stops a moment to think of it, that continual cutting of the grass must be the means of removing large quantities of plant food, and the necessity of replenishing it does not need further comment. It is best to apply fertilizer during a wet day, or just before a rain, if possible.

Onions will be ripening towards the latter part of the month. When the tops start to turn yellow, pull them and lay them on their sides for a day or two to dry. Then place them where they will have abundance of air, but no moisture, until the stems are entirely dry.

The old fruiting wood of the raspberries and blackberries should be pruned out as soon as they are through fruiting. While doing this work, an eye should be given for any growth with orange rust on the leaves. This is to be found more frequently on the blackberries than on the raspberries, although it may be found on both. Wherever found, it should be cut out and burned. The reddish dust so readily shaken from the leaves, is really the spores. The presence of these colored spore masses is external evidence that within the stems of the cane bearing affected leaves are the feeding threads, or mycelium, of the fungus, which live on from year to year. It is, therefore, little use to attempt control by means of spraying. The only means of combating rust is to cut out and burn all affected plants. Diseased plants are not worth saving for the fruit they have on them, as they are a source of contamination to healthy stock.

The Green-House.

Though we have just started to enjoy the pleasures of the out-door garden, yet when August comes we must provide for the supply of flowers for the winter months. Now is the time to repair the broken glass in the green-house, and the frames, too, for many plants can be accommodated in the latter for some time after frost has put an end to outdoor plants. The benches in the green-house will need to be put into shape for receiving the soil. Wash them down well, and give them a good coat of hot lime, which will account for a large percentage of the insects that otherwise will bother you during the winter months.

Carnations should be lifted from the garden and planted indoors as soon as possible now. Calla lilies ought to be under way at once, if they have not been already attended to. Use a rich soil for these plants, and give water sparingly after the first good soaking until the roots have begun to permeate the soil.

Snapdragon (Antirrhinums) can be benched for winter forcing now. Give them plenty of head room, and grow them cool, not over fifty degrees at night, for best results.

Stocks may be started for winter flowering. Sow in small batches, to keep up a succession. All potted plants that have been carried along in cold frames through the summer, should be put in the green-house now. Repot any such as need it. In many cases this will be the last potting. Freezias are now to be had, and they may be potted up or boxed, as soon as they arrive. Place them in a cold-frame, and cover them with an inch of ashes.

August Garden Activities

If you wish to move a large deciduous tree or shrub this fall, "root prune" it in August; that is, dig a circle three feet in diameter around it, deep enough to cut off many of the small roots, and then replace the earth. By fall it will be accustomed to the change and can then be moved.

Sow pansies for early spring blooming, in August. Buy highly bred seed if you want the best flowers true to type. Make the surface of the seed bed five inches above the surrounding soil, using new earth mixed with a rich compost. Soak the bed with boiling water so as to kill all insects, worms and weeds, then allow the bed to dry and rake very fine. After the seeds are sown, cover them with sand to a depth of one-eighth of an inch and dust over with powdered sulphur. This will prevent mildew during the five or six days of germination and will keep the seedlings from damping off. Press lightly and give the surface a watering. Then cover, making the bed both totally dark and water-proof, and do not water again until the seeds come up. When

Night blooming cactus, grown by J. A. Caron, Montreal, Que. Note accompanying article.

the plants begin to come through the soil, remove the dark covering and replace it with two thicknesses of mosquito netting. This will furnish the necessary shade and protect the little plants from insects and heavy rain and hail. Water daily through the netting, and as soon as they have made two true leaves transplant into rich soil six inches apart. They can be wintered in frames covered with cotton cloth or with straw, as they are hardy. They will give quantities of early spring bloom.

Autumn blooming crocuses must be planted in August, and will be in bloom in September. Spanish irises have to make a leaf growth in the fall, so should be planted in August.

If your bulb order has not already been sent, do not delay longer. Buy named varieties, not mixtures.

The garden can be kept blooming and beautiful in August by giving it plenty of water, constant cultivation and an occasional feeding of nitrate of soda or liquid manure. No seed pods must be allowed to form if continuous bloom is wished.

A Fine Gloxinia

The gloxinia shown in the accompanying illustration was a fine crimson and milk white. It was grown in a seven inch pot and had about twenty-five flowers on one centre.

The soil was the average mixture recommended by a garden magazine and Bailey's Encyclopedia. It was composed of two parts old leaf mould sifted, one part good peat chopped up fine, one part cow manure, old and friable, one part clean coarse river sand, three parts potting earth.

The Night Blooming Cactus

J. A. Caron, Montreal, Que.

I was fortunate enough recently to have a night blooming cactus bloom, and took advantage of the occurrence to secure a photo. It was taken by electric light, and required one and one-half minutes exposure.

The plant is highly interesting from the amateur gardener's point of view, because it blooms rarely, and only at night. On making my usual early evening round of the green-house, I noticed that the bud, which had formed in the previous two weeks, had all the appearance of opening. On my return home, after spending the evening with a friend, I again went into the green-house to see if anything had happened, when to my great surprise I saw one of the most beautiful flowers I had ever seen. This is a strong statement. in view of the fact that being an ardent lover of flowers, I have visited many fine gardens and conservatories in England and France.

I fear any attempt on my part to describe it would be a failure, so content myself by saying that it was seven inches in diameter, and of the purest white. It was suspended from the side of a leaf of the plant by a curved stem about eight inches long, of a reddish color.

The petals were of a delicate texture, beautifully formed, and the calyx contained the most marvelous feathery stamina I had ever seen. Its perfume was exquisite, and different from that of any other flower. It filled the green-house, which is not very large, being forty by sixteen feet.

A friend gave me the plant about twenty months ago, informing me at the time that I might have to wait ten years to see it bloom. I was fortunate, however, in producing a flower in so short a time, but am willing to nurse it for several years more to have another. It is worth the trouble.

Floral Reminders

August is the month for potting up arnus, freezias, Roman hyacinths and narcissus for early winter flowering. It is also the time for lifting and potting geraniums and other cuttings for the winter window garden. This work is generally put off so long that it is nearly spring before the plants can be got to blossom,

In summer every window-box should be watered at least once a day, in the evening. Particular care should be taken to pour the water freely in the corners and along the sides, for it is there that the roots are most likely to be injured.

If you sow or plant out seedlings of biennials now, they should be good, strong plants by autumn, and the pride of your garden next year.

Late tulips will have ripened off by now, and may be lifted and the dried bulbs stored. The large ones may be planted out again in the beds in the autumn, and the small ones planted a few inches apart in a month or two to grow into size next year.

Side shoot cuttings of many plants in the borders, such as pentstemons, antirrhinums, if inserted in pots of sandy soil and stood in a shaded frame, will soon be rooted.

Don't forget to keep the compost heap growing during the summer. Throw the lawn clippings, vegetable leaves and parings, weeds, etc., on the heap and fork the material in every once in a while. Add the scrapings from the poultry houses, or the manure from the stable, and on wash days see that all the wash water is carried out and thrown on the heap. During the summer use a fork and turn the whole pile in, mixing the material thoroughly, so that it will decay, or "compost," evenly all through.

Plants in window-boxes often suffer more from drought than others. Not only is part of each box actually within the wall of the house, but also the whole is overhung by the eave, so that no rain can reach it, except such as is driven inwards by the wind. The box also is generally exposed to strong sunshine, which dries up the soil rapidly.

Azaleas may be kept for another season, although the flowers will not be so good. Gradually reduce the water supply and keep in a cool place until next May, when the plants may be put in a shady place and rested until about September 1.

This gloxinia, a fine crimson and milk white bore about 25 flowers on one center. It was grown by Mr. H. Irwin, Westmount, Que.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated The Canadian Bee Journal.
Published by The Horticultural Publishing Company, Limited.

PETERBORO, ONTARIO

H. BRONSON COWAN, Managing Director.

The Only Magazines in Their Field in the Dominion

Official Organs of the Ontario and Quebec Fruit Growers' Associations and of the Ontario, Manitoba and New Brunswick Beskeepers' Associations.

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1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests. The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, and of The Canadian Horticulturist and Beekeeper, $1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising rates, $1.40 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December 1915. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 13,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1915	11,158	August, 1915	10,294
February, 1915	10,342	September, 1915	10,067
March, 1915	10,864	October, 1915	10,017
April, 1915	10,917	November, 1915	9,704
May, 1915	10,927	December, 1915	9,253
June, 1915	10,329		
July, 1915	10,448	Total	124,920

Average each issue in 1907 6,527
Average each issue in 1915 10,410

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not apply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honorable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

Economic Issues

The more the question of markets is considered, the larger and more involved become the issues that are raised. Having discovered how to market our fruit in the best possible form, we are confronted with the necessity of finding a market for it at prices that will yield a reasonable margin of profit. In seasons of crop shortages the problem solves itself. When, however, yields are large and the cost of production high, we see the depressing sight of fruit growers and fruit growers' organizations fighting among themselves for the limited markets available. Even then thousands of poor people remain unable to purchase this fruit.

In Oregon, the editor of Better Fruit is urging the fruit growers of that noted fruit district to bend every effort to finding some method of lowering the price at which fruit is sold. To do this, he points out, will widen the demand by placing fruit within the reach of large numbers of people who cannot afford to buy fruit at all, or at the most in but limited quantities. How this is to be accomplished is not pointed out.

One of the first steps towards enabling the poorer classes to purchase more fruit is to discover the causes of their poverty, and then to remove them as far as this is humanly possible. Poverty is such a common condition of large masses of the people, we have grown to consider it inevitable. The fact is, the earth is capable of producing enough for all, and does so now, but man's selfishness and inhumanity to man is keeping many from obtaining the full rewards of their labor. The Bible indicates that this condition is to continue until the Son of man comes in judgment, binds Satan and establishes millennial conditions on earth. In the meantime, Christians should not become weary in well doing.

The Commission on Industrial Relations, after several years of investigation of social and industrial conditions in the United States, has presented its report to the Government. It announces that poverty is caused, in a large measure, by our methods of taxation. It urges the taxation of land values. At first glance the connection between the taxation of land values and poverty may not be apparent, yet there is a direct and very vital connection.

The things which constitute wealth are produced in, their raw condition, out of the land or sea. When we enable men to hold land out of use, or to use it to less than its full capacity, we promote poverty by restricting opportunities for producing wealth.

In and around every large town and city, large areas of land are held out of use, for speculative purposes. Yet these are the localities where land is most required for productive use. In the city of Toronto alone some two thousand acres of land is held away from the people, by speculators. Lack of employment and poverty results.

Suppose a manufacturer desires to enlarge his plant. He requires land to do so. When he attempts to purchase this land, he is apt to find that the person who owns it, demands a price that anticipates its real value by several years. He concludes he cannot afford to buy at the price set, and abandons his intention of extending his sphere of operations. This often happens. Thus he is prevented from giving permanent employment to those whose services he would otherwise require. The bricklayers, stonemasons, carpenters, plumbers and othera whose labor would be needed to erect the building are not called upon for their aid. The wealth that he would produce in that building is not created.

Were land taxed according to its value, speculators couid not afford to keep it away, through demanding excessive prices for it, from would-be users. Instead, the size of their tax bills would place pressure upon them to offer it at reasonable pricea to those desiring to use it, or would lead them to put it to productive use themselves. Thus industry would be promoted and the production of wealth increased.

When we consider methods of extending the markets for our fruits, let us not overlook the important connection that exists between economic issues of this character and the purchasing power of consumers. It is a side of the question that as yet has not been given sufficient consideration. There are possibilities of extending the consuming power of nearby markets that most of us do not realize. Would this not constitute a good subject for consideration at the Provincial Fruit Growers' conventions next winter?

Embellishing Buildings

Thos. Adams, Town Planning Adviser, Commission of Cooservation, Ottawa

Manufacturers sometimes try to make their factories interesting, and to employ architectural treatment on parts of their buildings, but it is only when they have ample space to enable them to lay out grass verges and plant trees that they can obtain really satisfactory results. We have in Canada many very fine factory buildings which have been improved by gardening, and we have also many very fine buildings which have been very commonplace structures which are made to look quite pleasant as a result of the planting of trees and vines and the use of window boxes and other floral embellishments.

Commerical buildings in which stores and offices are situated in the centres of towns offer little scope for the horticulturist, and yet the work which is being accomplished in St. Thomas and other towns is very encouraging. Under the oversight of a horticultural society, flower beds can be laid out on the sidewalks, and flower vases set at street corners. Even stores and crowded commercial buildings can be made to look picturesque as a result of planting creepers and placing flower boxes in the windows and on verandahs. What St. Thomas is doing in this direction is significant, not so much for what it has accomplished as in showing the direction in which much can be done which was thought previously to be impracticable. Princess St., Edinburgh, the Rue di Rivoli in Paris, the principal shopping street in Fredericton, the Promenade Cheltenham and other shopping streets are attractively laid out with gardens, and this adds to the commercial value of these streets.

The public building, or a group of public buildings, provides a most important field of opportunity. In some cases, as in connection with the University and Administrative Buildings at Toronto, the value of open space surrounding public buildings is recognized in Canada. The result is that good buildings are shown to the best advantage and even poor buildings are made attractive. It is otherwise with many of our post offices, schools, banks and even some parlia-

ment buildings. They are often erected in crowded streets, and mixed up in an incongruous manner with untidy groups of stores and "skyscrapers." This, however, is not so common now as in former years. Yet we have examples of it even to-day.

Beautifying Civic Playgrounds

R. C. Burns, Brantford, Ont.

THE floral effect shown at the entrance to this civic playground was obtained in three years at a cost of $15.00 and a little care.

The picture shows the entrance to the Dufferin Lawn Bowling and Tennis Club, Brantford, a part of St. Paul's Civic Playground, and will convey some idea of what can be accomplished by a few enthusiastic members, in a short time, with a love of horticulture and a desire to make their playground ornamental as well as useful.

St. Paul's Playground is a part of the grounds of the Ontario School for the Blind. It was used as farm land until a few years ago, when the city, having grown up around it, the board of park commissioners obtained, not the ownership, but the use of it for the purpose mentioned.

While the larger part of it is used for baseball, football, and other sports, about three hundred feet square was allotted for tennis and lawn bowling. In 1911 the Dufferin Club secured this section and commenced operations. The parks board placed few restrictions on the club. The payment of fees, which were kept low, observance of rules, and good behavior, meet the requirements for membership. In this time this club has taken what was then a cornfield and converted it into one of the most convenient and best-equipped recreation grounds to be found anywhere. Ten rinks are available for bowling, and seven fully equipped clay courts for tennis; one of the courts is flooded in winter and makes a very desirable open ice rink which is well patronized for skating. A commodious club house was built, with shower-bath, lockers, and other conveniences. A set of dishes, gas stove, and other necessities were procured for the ladies' section, to serve refreshments. About fifty members have "joined the colors," and the membership is yet over two hundred.

Here, young and old meet in friendly rivalry under ideal conditions; the younger get the necessary physical exercise for their proper development; the older ones bowl and renew their youth. The addition of the perennials, paeonies, iris, phlox, etc., and some shrubs, while not costing much, adds greatly to the attractiveness of the grounds, and cannot fail to develop the love of the beautiful in nature, especially among the younger members.

There are many such pieces of vacant land in almost every city, town and village that can be obtained similarly, or for a nominal cost, and the right class of energetic citizens can accomplish all that has been done here, and more, at no cost to the municipality. Beside the fact that it increases the value of all surrounding property, the need of civic playgrounds is unquestioned, and is a problem that calls for increased attention.

In Nova Scotia fruit growers have been making a second grade of No. 3 apple, including the best grade of No. 3. They have been pasting a little label on their barrels explaining their grade. Already British buyers are recognizing and paying better prices for these grades.—P. J. Carey, Chief Fruit Inspector, Toronto.

Canadian Horticultural Association

ORGANIZED 1897

Nineteenth Annual Convention

Berlin, Ont., August 8th, 9th, 10th, 1916

FIRST SESSION.

Tuesday, August 8th, 2.30 p.m.

Address of Welcome ..... His Worship, Mayor Hett
Reply by E. B. Hamilton, London, Ontario.
President's Address .....F. W. Adams, Toronto, Ont.
Discussion of President's Address.....
Report of Secretary-Treasurer .....J. Luck, Montreal, Quebec.
Appointment of Judges for Trade Exhibit.
Report of Tariff Committee .....E. I. Mepstead, Ottawa, Ont.
Paper on Commercial Ferns ..... E. J. Hayward, Montreal

SECOND SESSION.

Tuesday, August 8th, 8 p.m.

Illustrated Address on Success with a Home Garden.
Geo. S. Baldwin, Toronto, Ont.
Paper on the Commercial Culture of Peonies and Dahlias.
Harry Tattle, Toronto, Ont.
Question Box.
Members are requested to mail same to the Secretary.
Competent members will be appointed to answer questions.
Report of Plant Registration Committee,
H. J. Moore, Queen Victoria Park, Niagara Falls.

THIRD SESSION.

Wednesday, August 9th, 9 a.m.

Paper on Budding Plants.....Frank Wise, Peterborough, Ont.
Report of Judges on Trade Exhibit.
Paper on the Gladoli ..... John A. Campbell, Simcoe, Ont.
Selection of Place for Next Convention.
Question Box.
Announcements.

Wednesday Evening—Association Banquet.

FOURTH SESSION.

August 10th, 9 a.m.

Problems of the Retailer .....H. Dillemuth, Toronto, Ont.
Paper on Outdoor Roses .....Julius Luck, Montreal, Que.
Question Box.
Unfinished Business.
Election of Officers.
Final Resolutions.

J. LUCK, Secy.-Treasurer.
1018 Queen Mary Rd., Montreal, P.Q.

Entrance to the grounds of the Dufferin Tennis and Lawn Bowling Club, Brantford, Ont. Note the effect of the flower beds.

Niagara District Notes

By F. G. H. Pattison, Winona, O. t.

During the last week of June a great improvement in the weather took place, since when we have had steady, bright, fine weather only broken by an occasional thunderstorm. July 11th to 13th, inclusive, a hot spell visited us, the temperature running up to over 90 in the shade all three days. On July 2nd, the eastern portion of the Niagara District, from St. Catharines to the Niagara River, was visited by a heavy storm of thunder and lightning, accompanied by a very high wind, which almost reached the proportions of a cyclone. In several localities large hailstones fell. Both hail and wind did a lot of damage, many fruit trees being blown down. Considerable quantities of green peaches, pears, and other fruits were knocked off the trees. The cherry crop was considerably damaged, and a good deal of harm was done to strawberries, raspberries, gooseberries, currants, etc. Tomato and potato plants were also damaged, being stamped down flat. The western end of the district had a storm with a good deal of rain and some wind, but no appreciable damage was done there.

At the present date (July 14), the strawberry crop is nearly over. It has been the best in years, both in quantity and quality, and the growers have done well out of it. The lowest prices reached were 9c to 10c per box, and by the crate, $1.80 to $2.00. Canning factories contracted at 6c per box. Mr. Jas. Wagstaffe, head of Wagstaffe's Limited, a jam factory in the outskirts of Hamilton, stated as follows: "We usually import from 50 to 60 carloads of American strawberries prior to the beginning of the Canadian berry season. This season, owing to the plentiful local supply, we have only imported 30 carloads, and expect to break all previous records this year in the quantity of berries handled."

Clarksons, near Toronto, report a very large crop. They are said to have had in the neighborhood of one million boxes, and for some time were shipping at the rate of from four to five carloads per day.

The Canadian Express fruit special made its first trip of the season, per G.T.R., on June the 27th. At St. Catharines, all the loading is being done at the Western Hill station, instead of at Geneva Street, as formerly. The express company is erecting a new fruit shed near the Western Hill station, to facilitate the handling of fruit. This fruit special will run daily till the end of the fruit season.

At a recent convention of canners, etc., Mr. Wagstaffe was the only representative who refused to be included in the canners' amalgamation, preferring to conduct his business on an independent basis.

A report from Niagara-on-the-Lake for the last week of June says: Home-grown strawberries, the finest ever seen, are coming in to the local stores in large quantities, and are meeting with a ready sale. The berries are large and much sweeter than the Southern fruit which has been on the market earlier in the season.

At the present date (July 14th), fruit prospects for the Niagara District are as follows: Gooseberries, red and black currants, are excellent crops. The two former have already appeared on the market. Small gooseberries (such as Downing) meet with a poor sale, but large gooseberries are in good demand. Black currants are likely to sell well. Jam factories are contracting at from 6 to 7 cents per lb. Raspberries and blackberries suffered a good deal from winter-killing and also from the excessive wet weather, but all healthy bushes are heavily loaded and there will be a good crop, provided the weather is not too dry.

Early sweet cherries have been scarce and prices good. Late black cherries are a better crop, but later white ones are quite scarce. Sweet cherries are likely to sell well at from $1.00 to $2.00 per large basket. Sun cherries are not more than from 50 to 60 per cent. of a crop, and there is likely to be a good demand for them; 75c to $1.00 is the ruling price at present.

Plums are not more than half a crop. Bradshaws are the best. Lombards are about half a crop. Gages are light; Early Japanese are a failure, except Burbank, which has about 30 per cent. of a crop. Grand Duke, Reine Claude and Monarch are fine.

Pears: Bartletts, 65 to 75 per cent. of a crop; Duchess, light; Anjou and Kieffer, fair.

Peaches are from 70 to 80 per cent. of a crop. Early and late peaches are good. Elbertas, fair; Crawfords, Fitzgeralds, etc., rather light.

Apples are about half a crop in this district, and promise to be of good quality where spraying has been properly done. There seems to be less scab here than in any other part of Ontario, and the codling moth has not been as bad as usual.

A report from Beamsville, of July 10th, says: "All varieties of sweet cherries started off at soaring prices. The crop will apparently be hardly half that of last year.

"Strawberries are getting on the light side, and very few will be coming in after to-morrow. The clear weather has improved the cherry crop, and the various varieties are nice samples. Red currants are due any day now. The crop is very fair and the fruit in good condition."

Grapes look very healthy and are likely to have a full crop.

The Experimental Station, at Vineland, has had a company of boys from a Toronto boys' home engaged at various kinds of work on the farm. These boys are having their annual summer outing, camping near the harbor; and by working partially for the Government during the day are enabled to pay the expenses of the outing.

At a meeting of the Citizens' Freight and Express Campaign, held in East Toronto early in July, it was resolved: "That the Ratepayers' and Business Men's Associations of the East End pledge their support and aid to the Citizens' Express and Freight Campaign Committee in their campaign in securing free freight and express delivery through all parts of the city."

Comprehensive plans have been laid for the carrying out of canned fruit campaigns in this district this year, for the benefit of Canadian soldiers in the hospitals of France and Great Britain.

An arrangement has been arrived at whereby the first campaign, now opening for the preparation of berries and other early fruits, will be carried on in Hamilton. Later in the season, during the peach harvest, the campaign will open in St. Catharines, with an objective of 50,000 quarts.

Meetings of the Canadian Club Committee and the fruitgrowers of Burlington, Winona, Grimsby, and Beamsville, took place between the 11th and 14th of July, and the fruitgrowers, in the same generous spirit that prevailed last year, signified their intention of supporting the work of the Canadian Red Cross Society fruit department in a thorough and far-reaching manner.

A report from Hamilton, of July 11th, says: "There will be a great difference in the various late cherry crops this year. There is likely to be a large quantity of black sweet cherries, while the white varieties will be very scarce. The reason is that the black cherries bloomed later than the others and thus escaped much of the wet weather."

In the Winona district there will be a fair crop of sour cherries, while in the neighborhood of Burlington there are not many on the trees. The reason given is that in some districts the growers did not get an opportunity to spray the trees at the proper time. It is reported that in the central part of Halton County there is a blight on the cherries. As a consequence, they have fallen from the trees.

A report from Lambton County says that the fruit crop looks good. Peaches promise a good crop. Leaf curl has been bad in unsprayed and insufficiently sprayed orchards. Apples promise a medium crop. Heavy dropping has taken place in some sections. Small fruits are a good crop, particularly raspberries.

A report from Simcoe, Norfolk County, says: "In all the unsprayed orchards and in many sprayed orchards—so called—apple scab was evident, both on the leaves and fruit. In the unsprayed orchards, of course, this will cause the dropping of nearly all the young fruit."

Mr. Jas. E. Johnson has word from New York State that apples are already very scabby there, and that the total apple crop will be much reduced on that account. We therefore believe that the careful fruit grower who has made a thorough job of spraying this year will find a ready market for his fruit, as good clean fruit will likely be scarce and high priced. We are consequently advising growers to apply a fourth and possibly a fifth spray to insure the crop, if possible, from further attacks of fungus diseases."

In spite of the backward spring and the late setting of plants, Mr. C. H. Godfree claims the record for the St. Catharines district in producing the first ripe tomatoes. These plants, which were "Bruce's First and Best," were not set out until May 24th, and the first ripe fruit was picked about the 2nd of July. On Monday, July 10th, the first basketful was picked, and was of first-class quality.

A report from Toronto, of July 11th, says that cherries are spoiling terribly this season, a few hours often sufficing for them to go bad. The best eating sweet cherries are selling around $1.50 to $1.75 per 11-quart basket this week. Ordinary cooking cherries are worth 50c to $1.00, according to quality.

On July 10th a deputation from the Beamsville fruit dealers waited on the Beamsville Council and asked for the privilege of loading shipments from their platforms along King Street, on the cars of the H., G. & B. There is no accommodation for this fruit now at the Dominion Express shed at the H., G. & B. station. The Council agreed to grant this privilege as long as the fruit was not loaded out of waggons. The Superintendent of Works is to keep an eye on the operations and see how they work out.

On July 13th there was abundance of small fruits on the central market, Hamilton. Red currants sold at 8c per box. Strawberries were very scarce at $2.00 to $2.75 per crate. Sweet cherries, $1.00 to $1.50 per large basket; sour cherries, 65c to 90c; new potatoes, 55c to 65c per basket; new peas, 50c to 55c per basket; new carrots and beets, 30c to 35c per doz.; new cabbage, 60c per doz.; new beans, 80c to 90c per basket; gooseberries, 10c per box. Home-grown tomatoes are expected to be on the market very soon.

Notes on Montreal Fruit Trade

E. H. Wartman, Dominion Fruit Inspector, Montreal, P.Q.

This 15th day of July finds our Ontario and Quebec strawberries nearly to an end. To-day New Brunswick strawberries and Ontario raspberries have arrived, which is a true sign Ontario and Quebec strawberries are about finished. My surprise is, we have had the smallest shipments of strawberries in many years from Ontario. Therefore, our commission men here have reaped a small harvest. The question is, where has Montreal gotten her supply, or has she been satisfied with only a taste and expects to make up by using other fruits more plentiful? Few are aware that within 30 miles of Montreal fruit growers have found out in the past few years raising strawberries in this vicinity has been a profitable business. Therefore acreage has increased year after year, so we have large quantities near home. Some days Montreal received over 3,000 crates from these outlying districts; not 27 size either, but 54's, which is the common crate here—a rough, strong crate, and when delivered on easy springs lands the fruit in good order and it sells quickly at remunerative prices to growers. The box used very largely is the one marked short, the balance the standard 4-5 qt. When I compare prices obtained by Quebec and Ontario I find Ontario men get quite an advance on Quebec growers' prices for same quantity of fruit. However, our Quebec berry growers are fortunate, living so near this big market. No excessive express rates to pay, as they carry their own to market, and where cooperation comes in, where one grower has half a load his neighbor fills out, say, from 15 to 30 crates, adjusting expenses. As to quality of Quebec berries versus Ontario I am not here to be the judge, but will say I bought 12 boxes Quebec berries on Bonsecours Market for 75c. When I got them home I picked out 19 berries and measured the circumference of each correctly, finding the average size a little over 5¼ inches; the largest 5¾ inches in circumference. The next test was to sugar a few and taste them, and I declare I could not detect any bad taste in any of them; in fact would pronounce them phenomenally good in flavor. Therefore, we would conclude if Quebec should double her acreage another year, Montreal will not require many from other provinces, although it takes a very large quantity to flood this market, as this fruit is a particular favorite. I was told by a friend of mine living on Island of Montreal he had last year 20,000 boxes of berries on his own plantation. This gentleman had 4,000 barrels apples in one season. I give these figures, as many have no idea such quantities grow on the Island of Montreal.

Raspberries from Ontario have started. First crate sold at 25c per qt. by crate. We are hopeful large quantities of this fruit will be shipped here, although prospects are not the brightest, on account of winter killing of canes. What do come here in good order will likely bring long prices. I could mention the name of a berry grower in Prince Edward Co. who made a fortune selling berries from 10 acres to the canning companies at 7c per qt. Of course to-day it costs a great deal more to produce a crate of berries than 30 years ago. All could not expect to be as successful as this man, as he was a real expert along this line; had a cannery at his door, losing no crate or berry boxes, and free of express charges. One fruit firm here this season had to pay $172 express charges on one day's shipments from Ontario. This is quite a charge against one day's fruits.

California fruits are arriving; about 15 cars per week; quality improving all the time in size and color. Peaches, plums and Bartlett pears. Fruiters buy this fruit readily, as it has very fine appearance and good keeping qualities, of uniform pack.

I will now give you a crop report of 45 large healthy apple trees just outside my window, but don't want you to take this as the general crop of Quebec. Last year, if apples had had a chance to mature on these trees, I would have expected 50 barrels. These were of the Fameuse type and codling. The boys took them all before being nearly ripe. When looking for one to eat at picking season not one was to be found. Would judge same trees this fall would produce 25 barrels, but am quite sure the crop will be marketed in the same way as last year. I can only look out of the window and see them go. This property is taxed very high and owner will get no returns. Some would say, and rightly too, where is your police protection? This orchard is within the city limits. Another orchard of 13 acres in same district, worth $10,000 per acre, with finest of McIntosh and Fameuse, guarded by tenant all day long and even by this protection, will lose a large quantity. Would not advise any-

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one to buy this orchard on a speculation to make money out of McIntosh apples, even if they do bring $9 per barrel at times.

In 1902 myself and family spent the summer at sea shore—Myrtleville, Co. Cork, Ireland. Outside our cottage door was a 20-foot wall around a nice garden and orchard. I said to John, the professional gardener, why do you have this great wall around your garden? Why, said he, if it were not there all our fruit would be stolen. I said, in Canada, we only have such walls around penitentiaries and jails.

But think on Island of Montreal it would take just such precautions to save the fruit, so a man could count on a few barrels as his own.

MARKETING IN 1916.

It is in a season such as the present, when Ontario apples are of a poor quality and other fruits (except peaches) less than a normal crop, that the greatest care should be exercised in grading, packing and marketing. The principal aim of fruit growers should be to cater to the tastes and requirements of the consuming public. If they have not sufficient quantities of high grade fruit to meet the demand, then there should be no attempt to "palm off" the more inferior grades on an unsuspecting purchaser who is looking for No. 1 fruit.

That, in a few words, is the danger which will confront Ontario growers this year. Apple production has been lowered by unfavourable weather conditions and the quality of the fruit has been reduced by the very serious development of apple scab in nearly all parts of the province. Under such circumstances it is reasonable to presume that the demand for apples will be good, the greatest demand being for the higher grades of which there is the least supply.

What will be the result? The apple producers must realize at once the necessity of much more careful and honest grading than ever before. If they do not—if they yield to a temptation to include in their No. 1 grade any fruit of inferior quality—they will be giving themselves a commercial setback from which they will not soon recover. The season of 1916 is going to be remembered as one of poor quality and low production, but it should also be remembered as a year in which the lower grades of fruit were honestly packed.

Canadian fruit is being given some publicity. In the dining cars of our Canadian railroads and in many of our leading hotels, cafes and restaurants, attention is being called, on the menus, to Canadian grown fruit. The Niagara Peninsula Publicity Association is advertising the merits of fruit grown in that district. The one aim of this publicity is obviously to increase consumption during a period of stress. The effort will be wasted if the growers themselves do not pack and market fruit which merits advertising.

Why this publicity if the supply is limited? One reason is that the advertising of "Canadian Fruit" will stimulate public interest. There are few house-holders who know anything about our fruit industry—its scope, importance and value. Just as a demand for a trade mark is created by judicious advertising, so will the advertising of Canadian fruit accomplish similar results. When industrial conditions again become normal, public interest will remember "Canadian Fruit" and in seasons of large production an increased consumption will offset many difficulties which have heretofore been experienced. People will eat Canadian fruit who have never eaten it before

and our home markets will thereby be extended.

There is one other reason why a certain amount of publicity is desirable this year. The export trade is restricted. There is no regularity of steamship sailings to Great Britain, and a large proportion of the available space is required for commodities which are not exported in such large quantities under ordinary conditions. Consequently the amount of fruit to be marketed at home will be greater than it otherwise would be.

Insect Pests in Manitoba*

During the past two years, insect pests have been reported as doing a great deal of damage to shade and ornamental trees in Manitoba, so the Department of Horticulture and Forestry of the Manitoba Agricultural College decided to give a series of lectures and demonstrations on sprays and spraying, for the control of tree pests. This work is in charge of the writer. Demonstrations were given at fifteen points in southern Manitoba.

At each of the places visited, a great deal of injury was found to have been done. In some of the towns in the southern districts as high as 30 per cent. of the Manitoba maples were found to have been killed and a very large percentage injured. A reliable authority in one of these places estimates that 50 per cent. of the native maples have been destroyed. The aphis and the canker-worm have been responsible for nearly all of the losses sustained in the places visited.

The Department are recommending the use of arsenate of lead for the cankerworms and other biting insects, and nicotine sulphate for the aphis.

Spring and fall cankerworms were found quite abundantly at Carman. In some places trees were almost defoliated by the canker-worms.

Several people in some vicinities reported the presence of a small dark brown beetle in enormous numbers. These beetles attacked the various members of the poplar family. Cottonwoods, balm of gilead, and willows were very badly infested. The insects appear very quickly, and do the damage in a short time. After they attacked a grove, the trees appeared as though scorched by fire. Specimens of these beetles were collected, and upon examination proved to be the willow leaf beetle. (Galerucella decora), a species of beetle which infest poplars and willows.

Cutworms have been doing great damage to garden crops, spring grains, and alfalfa. A gentleman living near Portage la Prairie had an eight-acre field of alfalfa nearly destroyed by the red-backed cutworm. Several sections, one square foot in area, were examined to determine the degree of infestation. Counts were secured which ranged from 28 to 70 to the square foot. One could be perfectly safe in saying that there were millions of cutworms in that alfalfa field. In another section, a 60-acre field of wheat was practically destroyed by cutworms.

The spruce gall louse was found to be doing damage to black and white spruce in various sections of the country.

*An extract from an article appearing in July issue of the Manitoba Horticulturist, by J. A. Neilson, B.S.A., Manitoba Agricultural College.

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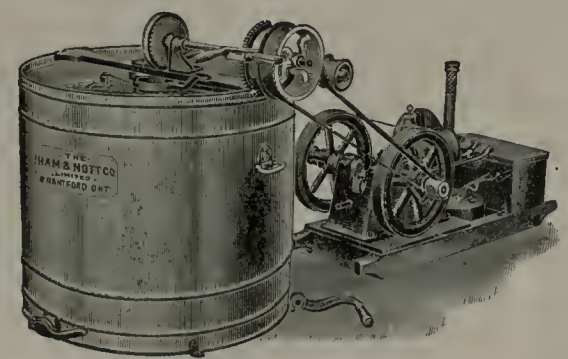

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Strawberry Growing in Quebec

By C. W. Baxter

"What beautiful strawberries!" This remark has been very frequently heard on the Bonsecour market in Montreal during the past strawberry season. The excellent quality of the fruit has prompted many purchasers to enquire where they are grown, the name of the variety and the method of production. It is doubtful if there is any province in Canada where strawberries can be grown more successfully and profitably than in the province of Quebec. Notwithstanding this fact, small-fruit growing has not yet received the attention which this industry deserves.

There are many districts in the province favorable to the growing of strawberries, but none more so than the Lake of Two Mountains with St. Joseph du Lac as the central point. With the many hills and valleys there are few farms where ideal location and soil does not obtain. The principal varieties grown are the Wilson, Haverland and Jessie.

The average size of the plots is from one to three acres and a new plot is set out each year. A few growers practise close planting in order to lessen the possibilities of winter injury and to control weeds. Two crops are taken off and then ploughed up.

The past season has been an ideal one, abundance of rain and cool nights, which retarded the ripening sufficiently to allow of practically all the berries to be harvested without waste. No difficulty has been experienced in obtaining pickers.

Unlike the strawberry growers of Ontario who ship their fruit in crates containing 24 to 27 boxes, the Quebec growers use a crate containing 54 boxes—three layers of 18 boxes each.

In a season like the present, good wages are made at the rate of 50c per crate, and as a rule much of the picking is done by members of the grower's family.

The methods of marketing differ from those in Ontario: instead of hauling the fruit to the railway station and shipping by express, the grower loads his crates on to his wagon and drives to market, a distance in many cases of forty miles.

As the Quebec grower produces very few, if any, other kinds of tender fruits, and as things are quiet just at that season, his time is very profitably employed. Thirty-five crates containing about 1,800 boxes, can be loaded on an express wagon and drawn by a team for long distances without overburdening the horses.

The grower leaves his home about seven o'clock in the evening and drives to Montreal. On arrival he places his wagon in its accustomed place in the market, stables his horses and retires for the night. The placing of produce the night previous to market day is a general practice and the produce is protected by the police department. The early hours of the morning finds the grower beside his wagon ready for business. Very few sell direct to the consumer; they prefer to sell by the crate or by the load to the wholesaler and the retailer, who return the crates when empty. As a rule mid-day finds the grower with his fruit all sold and ready to return home.

By this method the grower puts in a very profitable day. If marketed in the same way as in Ontario, a load of 35 crates would represent an outlay of $25.00 for crates, express, and hauling. The cost to the Quebec grower does not exceed $3.00 for this trip, leaving him a balance of $22.00 as wages for himself and team for one day.

Strawberry growing in Quebec has proven to be a very profitable industry and this year will net the growers from $375.00 to

GINSENG Seeds and Young Roots **FOR SALE**

Prices on Request.

JOSEPH LEARY

Whitevale - - Ontario

FOR SALE

Golden Seal Roots Hydrastis Canadensis

Send $5.00 for 50 roots (post paid) of this true Canadian medicinal plant and be the pioneer in your district. It is second to Ginseng in profit and much easier grown. All modern physicians use its extract (Hydrastine) in their practice.

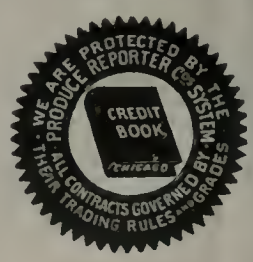
CHAS. LEGGETT

Kingsville - Ontario

Good Prices Always

For Your Fruit and Vegetables

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto Market, we have established branch warehouses with competent men in charge at Sudbury, North Bay, Cobalt, Cochrane and Porcupine. In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.



Branch Warehouses: Sudbury, North Bay, Cobalt, Cochrane and Porcupine. References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies.

SEND FOR SHIPPING STAMP.

H. PETERS

88 Front St. East, Toronto

$500.00 per acre. Planting is on the increase and although the marketing is now confined to the city of Montreal, it would not be surprising to find that in a few years the markets of Quebec will be supplied with strawberries grown within the province.

Town Planning

Thos. Adams, Town Planning Adviser, Commission of Conservation, Ottawa

It is around the home that gardens are most wanted and most easily obtained. Provision should be made in all town planning to give adequate garden space to each dwelling. For practical reasons it is not possible to house all our people in the cities in detached homes, but we should try to make that our ideal and do what we can to discourage any tendency towards the tenement house or other overcrowded conditions. The horticultural society is the best means of encouraging the individual householder to lay out his garden attractively and use it to the best advantage. Without the aid of such a society the lack of uniformity creates an untidy and generally unsatisfactory effect.

Tenements and other buildings of that class which are occupied by a number of families using a piece of ground in common have usually too little open land attached to them. The important thing in town planning is to insist on sufficient space being provided around the tenement to allow of there being plenty of space for light and circulation of air. If this were done it would be found that even in connection with such buildings there would be scope for the horticulturist in the designing and planting of the open space that would be provided for hygienic purposes.

The objection to even the best class of "apartment houses" as residences is not that they represent unsatisfactory living conditions, but that they are usually without sufficient open space surrounding them. When we arrive at the stage that we shall insist upon a building having a proportionately increased area of land surrounding it, as it increases in height, we shall be able to get healthier conditions as well as scope for garden treatment which will open up a new and interesting field.

Large "apartment houses" should have sufficient space adjoining them to enable shade trees, tennis courts and recreation spaces for children to be provided as part of the equipment of the group of dwellings. Under a proper system of development the space so provided would not be wasted land. Instead, it would be regarded as necessary open space for hygienic purposes, and its use for recreation and gardening would give this open space the position of being a real asset in the rental value of the premises.

Asparagus Culture

SOME six or seven years ago, Mr. W. C. Dempsey, Prince Edward Co., Ont., set out about two and a half acres of asparagus. In a recent interview Mr. Dempsey told me that he was having fairly good success with it, but that he had waited many years for these results. I had an opportunity of seeing the trays being loaded with this delicacy and my thoughts naturally turned to the question of the profits to be derived from asparagus culture. The results of my enquiries fully convinced me that in order to successfully grow asparagus on a commercial scale, years of experience and patient waiting are required, and even then only half of the way to success is won, as a market and a reputation must be found before it can be made a profitable line to follow. There is no reason why almost any one cannot have a small bed of asparagus sufficiently large to supply the home table, but the growing of asparagus in a commercial way is not a business for the average farmer. It belongs to the realm of special farming, where only those who have a liking for that particular line of work can make a success of the business.—W. G. O.

TRADE MARK
Wilkinson Climax B
REGISTERED
Ensilage and Straw Cutter

Our "B" machine, built especially for the farmer. A combination machine—it will cut and deliver green corn into the highest silo or dry straw or hay into the mow. 12-inch throat, rolls raise 6 inches and set close to knives—solid, compact cutting surface. Can change cut without stopping. Can be reversed instantly. Direct pneumatic delivery. Knife wheel carries fans. No lodging, everything cut, wheel always in balance. Steel fan case.

Made in two styles—mounted or unmounted. We also make larger type machine for custom work.

Ask your dealer about this well-known machine and write us for new catalog showing all styles.

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468 Campbell Ave.
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Beekeepers' Supplies

We Manufacture

Hives, Supers,
Frames, Feeders

We are agents for several well-known makers of Comb Foundation.

Best quality White Pine used in our hives, and carefully and accurately made.

TRY US.

The Tillson Company, Ltd.
Tillsonburg, Ontario

For the Land's Sake

Use the best Manure
and get

GOOD CROPS

For Nurseries, Fruit Growers
and Gardeners.

Sure Growth Compost

(A Composition of all Natural Manures)

Makes poor land fertile and keeps fertile land most productive.

Special Prices on Summer Shipments

Supplied by

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Telephones: Main 2841; Residence, Park 951
Say you saw this ad. in The Canadian Horticulturist

An Attractive Face

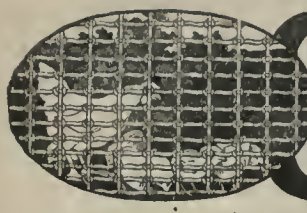
on your barrel of apples increases its value materially in the eyes of the customer. He is willing to pay more for fresh, snappy, unbruised apples. By using

WARNER'S APPLE BARREL PADS

in each end of the barrel you keep the faces fresh and firm looking and attractive to the eye. A few cents—that's all they cost—spent at your end may mean dollars sent back to you from the other end. Our barrel pads absolutely prevent them from being bruised when heading the barrel or shipping. Send for sample and prices.

R. B. WARNER

Inwood - - - Ontario



PEERLESS POULTRY FENCE

A Real Fence—Not Netting

Strongly made and closely spaced—making it a complete barrier against large animals as well as small poultry. Top and bottom wires No. 9—intermediates No. 12 wire—made by the Open Hearth process which time and other tests have proven to be the best. Send for catalog. Ask about our farm and ornamental fencing. Agencies nearly everywhere. Agents wanted in unassigned territory.

The Banwell-Hoxie Wire Fence Company, Ltd.,
Winnipeg, Man., Hamilton, Ont.

LOADING OUR LOGS

One of Our Specialties is

THAT GOOD APPLE BARREL

Not made from cull staves the rejections from flour and other stock of various bilges, but cut from absolutely mill run timber with exactly the correct bilge and thickness. Heading mostly basswood which takes a nice brand, is kiln dried and does not warp. Hoops standard. The barrels are all

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which insures an even croze and every head fitting. Why be worried with poor barrels causing loss of time? We make sixhoop eight hoop, also six wood and two wire, which is the favorite. If these barrels get wet hoops cannot break. We can ship car loads containing about 330

DELIVERED AT YOUR STATION

We ship thousands of barrels yearly to many large growers, dealers and fruit associations in Western Ontario, besides supplying 80% of the cooperage stock and barrels used in the great Eastern Ontario Apple Belt. Therefore we must give the best value obtainable. Our main plant is one of the

FINEST ON THIS CONTINENT

Write us for prices on cooperage or barrels delivered your station.

"Owing to the uncertainty of labor, we cannot guarantee present prices or prompt delivery except on early business."

TRENTON COOPERAGE MILLS, Limited

TRENTON, ONTARIO.

Summer Care of Small Fruits

W. T. Macoun, Dominion Horticulturist

Strawberries.

On the care which the strawberry plantation receives during the growing season, will depend to a large extent the kind of crop there will be next season. The more runners that can be placed with hand and trowel so that the plants will root quickly and be evenly spaced, the better. Very often there are too many plants in one place and not enough in another. Where plants are crowded and much less than six inches apart, the crowns do not develop well and the fruit is liable to be small. It is important to keep the plantation free of weeds and the ground cultivated as long as possible, as late growth, in the case of strawberries, will result in better plants. A light covering of clean straw is desirable when the ground freezes in the autumn, to prevent alternate thawing and freezing in the winter or following spring.

Raspberries, Gooseberries and Currants.

Often there is far too much wood left on the bushes of these fruits for best results. Attention is drawn to this now, as pruning of these fruits can be done, if desired, as soon as the fruiting season is over. Raspberry canes should not be left closer than six inches, the dead and weaker ones being removed and the strongest left. Where canes are not covered with soil in winter, the thinning out may be left until spring, when one can tell, before pruning, which canes, if any, have been injured by winter. Bending down the canes and covering the tips with soil, or where there is little snow, covering the plant entirely, will ensure the canes wintering well. Gooseberries are difficult to pick at any time, but, if the bushes are kept well pruned, picking will be much easier than if there are many branches. Branches older than three years should be cut out. The best fruit is borne on the two and three-year-old wood, but there should be a few strong new shoots, well distributed, allowed to remain each year. About six fruiting branches with their side shoots will be sufficient. Red currants are pruned somewhat as gooseberries, but a few more fruiting canes may be left. Unlike the red currant, the fruit of black currants is borne on the wood made this year, hence severe pruning of the older wood is desirable to ensure strong new wood each year.—Berwick Register.

Niagara Fruit Shippers

The fruit growers of the Niagara District have received some general improvements in shipping train service through the transportation department of the Ontario Fruit Growers' Association. By an order of the Railway Board the railways are now allowing $3.00 for the material used in putting in a Slated floor in the Refrigerator car if they are not thus equipped. Shippers are to keep a record of all cars floored, including those for which the authorized allowance is paid.

A better service has been promised on account of the large shipments of berries from Vineland and Jordan, and on account of the early arrival of the fruit train.

Under an order, dated May 15th, 1916, Ottawa shipments will be expected daily, except Sunday, from Jordan Harbor and Vineland Station. A car is to be placed at Jordan daily, except Saturday and Sunday, shipments from Port Hope East to Montreal being accepted in this car. This service is to continue from July 1st to August 31st.

No British Embargo on Fruit

The July number of the Agricultural Gazette contains an interesting report by F. H. Grindley, B.S.A. of the Fruit Department, Ottawa, on the present condition of fruit export to Great Britain this year as follows:

"In January last the president of the British Board of Trade hinted than an embargo would shortly be placed upon fresh fruits. Soon afterwards a similar ban was reported to have been placed upon canned, preserved, bottled and dried fruits. The reason given for this action was that the vessel space was required for cargoes which were more essential to the needs of the British people.

Ever since that time there has been a great deal of concern among Canadian growers and exporters of fruit as to the possibility of reaching the British market with their products.

Realizing how serious would be the results of such an embargo, not only to the fruit trade of Canada, but to the British importers and retailers of fruit, interested parties put forward every possible argument against the adoption of such a measure.

Fortunately these petitions made by the Department of Trade and Commerce, the Acting High Commissioner in London, the Canadian Fruit Trade Commissioner at Leeds, and others, resulted (1) in the removal of the embargo on fresh fruits shipped from the Dominions of Great Britain, and (2) the free entry of canned fruits, etc., provided that each shipment was accompanied by a certificate of origin.

At the present time, therefore there is no restriction upon exports of fruit to Great Britain, so far as their free entry into that country is concerned. The only feature now to be considered—and it is an important one—is whether or not the demands upon vessel space will be sufficiently great to minimize the space available for fruit. Judging from the delays which occurred last year, and the fact that conditions promise to be very similar next season, we are persuaded that shippers will be wise not to depend upon any regularity in the steamship service.

The "Old Country" markets, in a year of average production in Canada, receive approximately 1,000,000 barrels of Canadian apples. It is, therefore, apparent that a serious situation would arise if any pressure of circumstances were to interrupt that trade, and thereby throw upon our Canadian market an additional supply of apples equivalent to over 6,000 carloads. A concerted effort by the fruit growers to extend their home markets, organize distribution and increase consumption in every possible way, would help very materially to relieve the situation. Such efforts would have the additional advantage of effecting results that for some years have been essential to our domestic fruit trade. Canadian fruit growers have been almost too dependent upon the export market, and have not given sufficient attention to the development and extension of the home trade; the present restrictions on the export trade, should they continue, may, therefore, be in one sense beneficial.

During the past two seasons there has been a most satisfactory demand for the higher grades of fruit, but a very limited market for fruit of inferior quality. We believe, then, that if growers will do their utmost this year to produce a crop of high quality, they will find no difficulty in marketing it at good prices.

We feel hopeful, too, that the facilities for exporting fruit will not be as inadequate as rumours would lead us to believe.

MERRYWEATHER'S

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Fall Planting

Advance Catalogue including this year's Novelties of

Roses

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Bulbs

will be sent free on request by

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Aug. 26 Canadian National - Exhibition - Sept. 11

Empire Federation Spectacle, 1,200 performers; 10 massed bands. Glorious pageant, symbolizing Imperial solidarity and power. Mammoth scenic reproduction of the British Houses of Parliament, Westminster Abbey and the War Office.

THE WORLD AT WAR,
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Government exhibits; superb showing of live stock and agricultural products; acres of manufactures.

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SANDER & SONS
ORCHID GROWERS
The Finest Stock in the World
Catalogue on Application
ST. ALBANS - ENGLAND

NEW AND RARE SEEDS
Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalogue free.
Perry's Hardy Plant Farm
ENFIELD, MIDDLESEX, ENG.

THE
WESTERN FAIR
LONDON, CANADA
September 8th to 16th, 1916

FRUIT and FLOWERS given special attention in this year's Prize List. A "County Special" of $50.00 for fruit open to any county in Ontario. Excellent programme before the new steel grand stand twice daily.

Special Railway Rates

PRIZE LISTS, ENTRY FORMS, and all information regarding the Exhibition on application to the Secretary.

W. J. REID, President A. M. HUNT, Secretary

What Are Your Wishes Regarding a Greenhouse?

WE are equipped to meet your wishes in every particular in the matter of a greenhouse, and it would be well worth your while to send us your name and address, and we will mail you a copy of our beautiful booklet, illustrating some of the styles and designs of greenhouses we have already erected.

Though we build a great variety of greenhouses—they are all alike in the matter of efficiency and those points in construction the professional gardener demands.

When writing for booklet, Address Dept. B.

GLASS GARDEN BUILDERS, Limited

201 Church St., Toronto.

Transportation Building, St. James St., Montreal.

Factory—Georgetown, Ont.

The Hand Scuffler in Use.

Do You Want a Handy HAND SCUFFLER

THE handy hand scuffler is an ideal implement for garden weeding, and mulching. It is made of the best saw steel, and has three cutting edges, on two sides and one end. Lying flat on the ground, a slight pressure either in pushing or pulling only is required. It can be used endwise to chop tough roots. It is especially adapted for cleaning around bushes and plants.

Made in two sizes. The blade on the large scuffler is 9 inches by 3¼ inches; in the small one 6 inches by 2¾ inches. The handle is about five or six feet in length. The small size is more convenient for the enthusiastic woman gardener.

SPECIAL PREMIUM OFFER

One hand scuffler FREE (as above) with each new single subscription to The Canadian Horticulturist at $1.00. Will also sell these (express extra), direct to subscribers at 50c. for the small and 75c. for the large size.

THE HORTICULTURAL PUBLISHING CO.

Peterboro, Ontario LIMITED

British Columbia Fruit Growers' Convention

The first mid-summer convention of the British Columbia Fruit Growers' Association and the British Columbia Entomological Society will be held at Penticton, B.C., on July 20 and 21. The program as outlined includes addresses and papers by the following on the subjects given:

D. Johnson, Fruit Commissioner, Ottawa —"The Marketing of Fruit."

Lionel E. Taylor, Kelowna, vice-president of the B. C. Entomological Society—"Birds in their Relation to Fruit Growing and Agriculture." This address will be illustrated by lantern slides.

Dr. F. F. Westbrook, president of the British Columbia University, Vancouver—"Agricultural Education in British Columbia."

R. M. Winslow, Provincial Horticulturist, Victoria, B. C.—"Why Advertise B. C. Fruit?"

R. C. Abbott, coast markets commissioner, Vancouver, B.C.—"Opening the Coast Market for Okanagan Fruits and Vegetables."

R. C. Thehern, Assistant, Dominion Entomologist for British Columbia—"Important Insect Pests of Okanagan Fruits, and Their Control."

J. W. Eastham, Provincial Pathologist, Vancouver, B.C.—"The Control of Plant Disease in Irrigated Fruit Districts."

Tom Wilson, inspector of Indian Orchards, Vancouver, B.C.—"Cutworms and Their Control."

Other probable speakers who have not been definitely arranged for as yet include Hon. William Manson, Hon. H. Bark, Idaho, and Prof. W. S. Thornber.

Telegraphic Reports

Commencing about August 1st, the Fruit Branch of the Department of Agriculture at Ottawa will publish at frequent intervals (probably twice weekly) reports covering fruit conditions in all parts of Canada. These reports will contain the following information:

1. Fruit crop conditions in all commercial sections.
2. Wholesale prices in leading Canadian markets.
3. Quantities of fruit being exported.
4. Condition of fruit on arrival at destination.

This information will be of great value to all who are commercially connected with the fruit-growing industry. The reports will be received in Ottawa by telegram and distributed immediately.

Anyone wishing to receive these telegraphic reports can do so by making application to the Fruit Branch, Department of Agriculture, Ottawa.

Fruit Crop Items

The second fruit crop report issued by the Dominion Fruit Division has just come to hand and shows some changes since last month. Incessant rains in Ontario and Quebec during the month of June has caused some falling off in fruit prospects. The wet weather has caused a rapid development of scab in practically all districts of these two provinces. The Annapolis Valley and Nova Scotia has had good weather, and as yet little scab is reported. It is estimated that the total crop will be close to 1,000,000 barrels.

Prospects on the whole, however, are that there is promise of a fair apple crop, some sections having a much larger yield than others. British Columbia has the promise of a fairly large crop.

The Fruit and Produce Market

The Commission firms undernoted wish consignments of fruit and general produce. They will be pleased to have you write them for information, shipping stamps, etc., if you have fruit or vegetables for sale.

Top Prices, Quick Returns and a Square Deal

THE WENTWORTH ORCHARD CO., Limited
109 King St. East and Yonge St. Wharf, Toronto

The only wholesale Commission House in the city to have consignments by either boat or rail unloaded directly into Warehouse.
Wentworth Brand Fruits are advertised extensively and there is a constant demand for them. Ship to The Wentworth Orchard Co., Ltd. Send for Shipping Stamp.

References: DUNNS, ROYAL BANK

H. J. ASH

44-46 Church St. - Toronto, Ont.
CONSIGNMENTS OF FRUIT & VEGETABLES SOLICITED
We give personal, consistent and reliable attention to every consignment. Shipping stamps furnished on request.

DAWSON-ELLIOTT Co.

32 West Market St., Toronto, Ont.

Wholesale Fruit and Produce. Consignments Solicited.

STRONACH & SONS

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Wholesale Fruit, Produce and Commission Merchants.

A Good Firm on Two Good Markets

TOM ADAMS AND BROS.
Fruit Merchants
BRISTOL

TOM ADAMS AND BROS.
Fruit Merchants
SWANSEA

Head Office:—BRISTOL

Get in touch with them to-day if you want top prices for your produce.

This Space Costs $1.40 per month. Order now for the next four months.

Apple Receivers

Representing
Simons, Shuttleworth & Co.
Liverpool and Manchester.
Simons, Jacobs & Co. Garcia, Jacobs & Co.
Glasgow, Scotland. London, England.

SIMONS FRUIT CO,
David L. Dick, Manager.
27 CHURCH ST. : TORONTO, ONT.
Information regarding export markets on request.

HERBERT PETERS

88 Front St. E., Toronto, Ont.

Wholesale Fruit and Produce

See advertisement on page 206.

WANTED

Consignments of Cherries, Tomatoes, Peaches, Grapes and all kinds of fruit; also carlot apples. Centrally located, convenient to all car tracks. Commission 10%.
HYSLOP & SONS, 132 Princess St. Winnipeg, Man
References— Any mercantile agency, or Bank of Hamilton, Hamilton, Ont.

FRED BARKER

25 Church St., Toronto, Ont.

Representing J. & H. Goodwin, Ltd., Manchester; Thos. Russell, Glasgow; Nothard & Lowe, London; G. R. Cooper, Liverpool.
APPLE RECEIVERS.
Consignments Solicited.

LAING BROS.

307-309 Elgin Ave., Winnipeg

Wholesale Fruit, Groceries, Produce, Grains, Hay and Commission Merchants

We want Consignments

of Tomatoes, Peaches, Cherries, Grapes, and all kinds of fruits and vegetables in baskets, in car lots or less. We make a specialty of barrel apples in car lots. Write us.

McBRIDE BROTHERS

J. R. McBride, Proprietor.

Fruit Exporters, Importers and Commission Merchants.
Consignments solicited. Terms cash.
35 CHURCH ST., - TORONTO, ONT.

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Wholesale Produce and Commission Merchant. Consignments Solicited.

The Oldest Commission House in Toronto

McWILLIAMS & EVERIST

Send your Consignments.

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Fruit Broker and Potato Factor,
New Hibernia House,
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Depots:
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Consignments of Apples will receive prompt attention and Account Sales with remittance will be despatched immediately after sale of Goods. Shipping Mark (F).

FREE LAND
For the SETTLER in
Northern Ontario

Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.

Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.

For full information as to terms, regulations, and settlers rates, write to

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Director of Colonization
Parliament Buildings, TORONTO

HON. G. HOWARD FERGUSON,
Minister of Lands, Forests and Mines.

The Poultry Yard

F. C. Elford, Central Experimental Farm, Ottawa

During August, two things especially must be provided against—lice and heat. Make sure that there is plenty of shade, provide this as mentioned last month, and keep everything clean and look out for mites.

Once a week the quarters should be thoroughly cleaned and disinfected. A hand spray, or even a small broom, and Zenoleum applied regularly, will keep the coops sweet. While you are at it, clean out the poultry-house the hens were in last winter. Give it a thorough house-cleaning, taking out all the furnishings; leave them in the sun for several days; scrub and clean the house; disinfect and whitewash before the furnishings are put back again.

Any chicks that are inclined to be weaklings should be disposed of. Feed them a little extra and sell them for table use, or if their constitution is not strong enou for this, kill and bury them at once. Th are easy marks for any poultry disease th happens to come along. They become ca riers of disease and lice. Get rid of the Read over last month's notes. Many them are timely for August.

THE oldest line of steel beam plows in the Dominion, made in the old Wilkinson Plow Co's factory, by old Wilkinson Plow Co. experts—every one of them men who know their business. It is the standard line of plows and includes 25 or more styles to choose from. U. S. S. Soft Center Steel Moldboards, highly tempered and guaranteed to clean in any soil. Steel beams, steel landsides and bigh carbon steel coulter. Clevises can be used either stiff or swing. Each plow is fitted especially with its own pair of handles—rock elm, long and heavy and thoroughly braced. The long body makes it a very steady running plow. Shares of all widths — specials for stony or clay land.

Wilkinson Plows

General purpose, light, medium, and heavy, side hill, sod, drill or one horse plows

The plow shown turns a beautiful furrow, with minimum draft and narrow furrow at finish. *Ask for new booklet.*

Repairs for all Wilkinson Plows

The Bateman-Wilkinson Co., Limited
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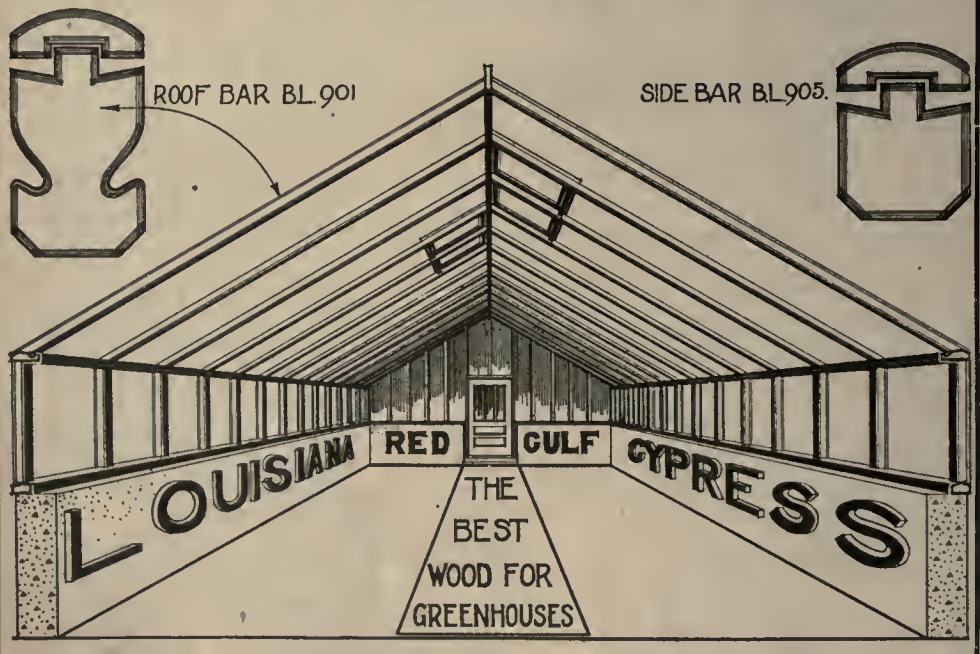
GREENHOUSES



MANUFACTURERS GREENHOUSE BARS AND SASH

Batts Limited

366-415 PACIFIC AVENUE - - WEST TORONTO

Quince as an Ontario Fruit

QUINCE has never become very popul as a fruit, yet it is one of the olde being much in favour as far back the time of Henry VIII. Some people a quite fond of quinces and if they were mo extensively grown and used they might more popular.

Some five or six years ago I planted number of trees in my garden just to see they would grow and produce fruit. Th have grown fairly well and do not seem be seriously affected by this rigorous c mate. We have had some fruit from the also, and it is as delicious as any that c be bought.

We have found that the quince does be on well drained clay soil. It will not p duce good growth on wet land. The tr should be kept open to the sun and trimm carefully. The growth is slow, but tre will usually bear at about four years old. am quite convinced that the quince is worth of a much better place in the minds most people than it now holds.

The most effective way of supplying t requisite fertility for strawberry plants, a the one that insures the largest returns the investment of time and money, is apply nitrate of soda at the rate of seven five to one hundred pounds to the acre, cording to the apparent needs of the s and plants. This should be done by ha

Strawberries can be grown with less wo than any other kind of fruit.

Defining Grades of Apples

D. Johnson, Dominion Fruit Commissioner, Ott

THE amount of ink spot that is allo able on a No. 1 apple has proved be a most difficult matter to deci There has been little or no trouble defini a No. 1 apple, but it is different with a N 2. Our fruit inspectors are being sent fr shipping point to shipping point, instruct growers as to what is a No. 2 apple.

Dealers complain that we are not str enough. They want a package that will h up for some time after purchase. We f defects develop rapidly, sometimes mak apples of apparently good quality wrong sooner than expected.

Many of the No. 2 apples placed on market are no better than a No. 3, althou a couple of months earlier they may ha been good No. 2's. Some growers are conscientious they pack a No. 2 apple t would grade No. 1. Others pack a No. 1 t should be No. 2.

There are all kinds of No. 3's. It is fair to consign fine, well matured, nic colored apples, with only a little scab, i the No. 3. This is what has made it nec sary that we should define the No. 3 gra or have two grades for No. 2. When grow have branded their apples No. 3, no mat how good the quality, they have had d culty selling them by letter or wire, as buyer has been afraid they might be tra

Annapolis Valley

Eunice Buchanan

Although there was no late frost in the Annapolis Valley, June was exceptionally lacking in sunshine, having fifteen days when it rained—and at times very heavily. July has made no change so far (July 4th), as it has rained three days out of four, some of the downpours exceeding those of June.

Strawberries promised an enormous crop, as the first blossoms were not injured by frost. The first berries were gathered about June 24th, and made 20c at the station, but the continued rains have softened the fruit and made it difficult to pick.

Those who were fortunate enough to get their seeds in early have luxuriant peas, spinach, lettuce, and such-like small stuff, especially if they hoed early; but those who were later may stand under umbrellas and watch the weeds racing the plants. In places, some of the crops are under water. Tomatoes were planted after June 10th, and blossomed about June 19th.

The first cutworms were noticed on June 4th, but we soon ended their raids with a damp bran mash tinted with Paris green. Seeding down and other work has been delayed, but the weather conditions have not hindered the ravages of the green apple bug or of the canker worms. Some orchards have been badly attacked by the latter. What looks suspiciously like fire blight has appeared in several orchards; some of the affected trees are dying in groups after leafing out.

In unsprayed orchards, spots are developing rapidly, especially on the Gravensteins; in sprayed orchards, where the spray missed the tree tops, spot is also appearing, but considering the muggy weather there is not as much spot as one would expect. By the end of another week we shall be better able to judge the prospects for a clean apple crop.

Berwick, July 4th, 1916.

Late Blight of Potatoes

Late blight makes its presence in the field known when the vines are about 10 inches high. The disease first appears on the under surface of the leaf. The best time to detect this disease is early in the morning when the dew is still on the leaves. At that time slight growths of white mould will be seen, which disappears as the temperature of the day increases. These growths will be found on brownish-black spots, somewhat irregular in outline and occurring in the beginning near the edge of the leaf. As the disease becomes more intense, it spreads over the entire vine. The result of this disease is early death of the vines, a small yield of potatoes and rotting in the bin of potatoes from diseased vines.

Spraying the vines prevents late blight. Bordeaux mixture has been found the most efficient mixture. The home-made mixture is by far better than the prepared mixtures sold on the market. Substitutes for Bordeaux mixture, such as lead arsenate and sulphur have been found unsatisfactory. Lead arsenate is slow in action and often clogs the spray nozzles.

The principle involved in the use of a spray to prevent blight is based upon the method of the spread of these diseases. The small germs causing the blight are blown by the wind from field to field and from plant to plant. The germs fall on the leaves and there germinate. A thin film of Bordeaux mixture on the surface of the leaf will kill the germ when it lights and thus prevents disease.

Making Bordeaux Mixture.

The usual formula for the preparation of

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Annual Exhibition and Fall Packing Number

Published September 1st

THIS is our big Annual Fall Special and is one of our best and most important issues. It is published just when our fruit growers are planning for their fall and winter work. Several hundred sample copies, too, will be distributed at the Canadian National Exhibition by our representatives.

SPECIAL COVER

The front cover will be a special full page cover design, printed on heavy coated stock. It will add much to the attractiveness of the issue.

ARTICLES

A splendid array of special articles is being arranged. These will deal largely with the fall problems of the fruit grower—packing, shipping and marketing fruit—and will be secured from authorities on these questions.

RATES

Advertisers who are planning fall campaigns and wish to get in touch with the progressive fruit grower will do well to reserve space early in this Special Number. Rates are as usual—$1.40 per inch per insertion.

FOR OUR BEST SERVICE RESERVE SPACE NOW.
COPY MAY BE SENT UP TO AUGUST 25th.

The Canadian Horticulturist

Peterboro, Ontario

CLASSIFIED ADVERTISEMENTS

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign, or single letter to count as one word, minimum cost 30c., strictly cash in advance.

REAL ESTATE

ALL KINDS OF FARMS—Fruit farms a specialty. Write for Catalogue. W. B. Calder, Grimsby.

FARMS—All kinds—Fruit, stock, grain or dairy farms for sale. Also have clients with good city property who would exchange. H. W. Dawson, Brampton, Ont.

SPRAYING.

SAVE MONEY—Get our Spraying and Garden Supply Catalog. Morgan's Supply House, London.

BEES.

FOR SALE—Untested Golden Italian Queens, 60c each. J. F. Michael, Winchester, Ind., U.S.A.

ITALIAN BEES AND QUEENS as advertised on page 206. Catalogue free. Deroy Taylor Co., Newark, N.Y.

BEST THREE BANDED QUEENS at lowest prices, after June 1. Also Bees by the pound. Satisfaction guaranteed. Send for circular. J. H. Haughey, Berrien Springs, Mich.

BEES—Per pound, $2.15; per frame, $2.35; queen, $1.00. Comb foundation, light brood or extracting, per pound, 60c. Langstroth hives and frames, painted and empty (new), $1.60 each. Address Aurora Apiary, Aurora, Ont.

FOR SALE—Italian queens from the best honey gathering strains — untested queen, 75c; 6, $4.25; 12, $8.00; tested queens, 1, $1.25; 6, $7.00; 12, $12.00. Robert B. Spicer, Wharton, N.J.

NOTICE—Gray Caucasian Queens. Their superior qualities are early breeding, great honey gatherers, very prolific, very gentle, great comb builders, give better body to honey, very hardy, will work when other bees stay in hive, good winterers, the best all-purpose bee. Give me a trial order. Prices for August and September: untested, $1.00; select untested, $1.50; select tested, $2.50. Now is the time to requeen with the Gray Caucasian Queens for next season. Fay L. Barber, 290 State St., Louville, N.Y.

BEE SUPPLIES.

BEEKEEPERS—Please write for our Catalog. Morgan's Supply House, London.

NEW HIVE—Tested out three years. More honey produced. No heavy lifting. Non-swarming and robber proof. Winters properly without labor or expense. Present equipment easily changed to it. Other advantages. Send for particulars. Wm. F. McCready, Box 4, Estero, Florida, Lee County.

1,000 GUMMED HONEY LABELS, two colors, any wording, for $1.30. Catalogue free. Eastern Label Co., Clintonville, Conn.

SEEDS.

YOU WANT "Reliable Seeds," get our Seed Price List and Save Money. Morgan's Supply House, London.

Bordeaux mixture is five pounds of copper sulphate (blue stone) and five pounds of stone lime to 50 gallons of water. The two chemicals must be dissolved separately. The weights should be accurate. Guess work often causes more harm than good. First dissolve the copper sulphate in about ten gallons of water and then dilute the solution to make up 25 gallons. Then in another tank slake the lime before making an attempt at forming a solution. Then allow the lime to dissolve in water, gradually bringing the solution up to 25 gallons. Then stir in the lime solution and pour into the copper sulphate solution. This process requires two tanks capable of holding at least 25 to 50 gallons.

Paris green can be added to the copper sulphate and lime mixture which will kill insects. Usually from one to two pounds of Paris green for every 50 gallons of Bordeaux mixture is used. In this manner, one spraying can be made to serve a double purpose.

Fraser Valley, B.C.

The Fraser Valley growers are expecting a big season in berries and are opening offices at two points, Hatzic and Mission City.

It is expected that about 30 carloads of berries will be shipped from this section in addition to the quantities sent to the jam factories. The number of acres under berries is very large this year and it is expected that this acreage will almost be doubled next year.

More B. C. strawberries are being sold in parts of Manitoba than ever before. Winnipeg jobbers have been pushing the sale of B. C. fruit strongly.

The British Market

An English correspondent, writing a few days ago about fruit conditions in Great Britain, says, "I am under the impression that there will be a good demand for apples from Canada this season. The English apple crops are not looking at all well, though it is early to pass an opinion at present. The will likely be small, scrubby and wormy. In any of the districts do better than others it will probably be the districts that have only been planted of late years.

"Canadian apples coming on to this market do well, especially if the samples are good and clean. One of the troubles of a number of shipments in past years from Canada is the fact that many of the ends come out of the barrels in transit. This is probably owing to the nailing, and you will understand that where the bottoms and tops come out of the barrels the apples are considerably damaged and numerous barrels lost out of the shipment."

Win Against the Hessian Fly

TO Escape the Main Attack of the Fly —sow your wheat late. The early brood is most destructive to young wheat and provides for future broods. Your own Experiment Station will tell you this.

THE Best Wheat Yields come from plants that enter the winter strong and vigorous. Your own experience will tell you this.

TO Win Against the Fly, seed late, feed the crop with available fertilizers which will hasten growth to overcome the late start, and secure vigor with consequent resistance to later broods. Use 200 to 400 pounds per acre containing at least 2 per cent. of ammonia. Acid phosphate alone does not give the necessary quick growth and resistance to the fly.

In Farmers' Bulletin No. 640, U. S. Department of Agriculture, fertilizers are recommended to give vigor to late sown crops and resistance to the Hessian Fly.

Write for our map showing best dates for sowing wheat in your locality; also our Bulletin, "WHEAT PRODUCTION," both mailed free.

Soil Improvement Committee
OF THE
National Fertilizer Association

CHICAGO Dept. 148 BALTIMORE

The Canadian Horticulturist

Floral Edition

Vol. XXXIX PETERBORO, SEPTEMBER, 1916 No. 9

Standardization of Fruit Packages*

A. H. Slack. Dominion Fruit Inspector, Winnipeg

At a time when our fruit industry is passing through trying conditions, and when united action is needed, we should approach the question of the standardization of fruit packages with a broad mind, endeavoring to select the best from all viewpoints regardless of where the packages originated. The first step is to recognize that standardization will be to your advantage as fruit growers, whether we dispose of your fruit through cooperative channels, independent channels, or direct. Some difficulties may arise in determining the best packages to adopt, but I do not think that these will be formidable provided they are considered with an open mind.

Some misunderstandings probably exist as to what is meant by standardization. I have heard growers oppose any move in this direction by stating that they would not agree to any legislation that required them to pack a particular kind of fruit in any particular package, claiming that it would not be to their advantage to do so. As a matter of fact standardization need not require this, so that any objections from this viewpoint should be easily removed.

It would be necessary to select from the various packages at present in use, what would be considered the best peach box, four basket crate, berry crate, pear box, apple box, apple crate, etc., and standardize the packages selected. This would not mean that a packer would be required to pack only peaches in a peach box, or pears in a pear box, etc., but it would require that whatever package was used would have to be of a specified size.

There are several reasons in favor of this. There are on our markets several sizes of peach boxes, apple boxes and crates, berry crates, etc. This results in confusion to the wholesale trade, retailer and consumer, and, in some instances, results in price cutting.

A number of our shippers have adopted the Oregon apple box for domestic purposes. It may surprise some to hear that whereas the recognized size of this package is 11½ in. in width, 10½ in. in depth and 18 in. in length, inside measurement, with a cubic capacity of 2173½ cubic inches, some boxes have been made only 10 in. deep containing only 2070 cubic inches. During the last season the 24 deep pint berry crate was used by some shippers, with a supposed cubic content of 33.6 cubic inches, but packages have arrived on our markets intended for deep pints but in reality containing only 27.89 cubic inches, or 5.71 cubic inches short.

In conversation with manufacturers of box material, both in British Columbia and Washington, they have advised me that they are sometimes approached to manufacture packages, particularly berry packages, just a little smaller than the usual size. Without standardization this condition cannot be controlled. It is not necessary to emphasize that it is a situation far from desirable.

Outside Competition.

Standardization would act as a protective measure against the importation of fruit in packages other than those adopted by us. Our competitors in the western states have, on several occasions, introduced packages on our

* Outline of an address delivered recently at several different meetings of fruit growers in British Columbia, which resulted in a committee of representative fruit growers being formed to deal with the suggestions made by Mr. Slack.

Penticton, B.C., here shown, is at the foot of the Kootenay Lakes, and is in one of the leading fruit districts of the province. An important conference of fruit growers, lasting several days, was held in Penticton the latter part of July.

Well packed fruit, as handled by the Gordon Head Fruit Growers' Association, Victoria, B.C.

markets that varied from those in general use here. In view of the fact that the imported goods are usually on the market in advance of our own, and often in packages superior to ours, they create a precedent in favor of the imported article. It has often been to our interest to adopt these packages, and, in some instances, for our protection, we have been compelled to do so. It is not my intention to criticize the packages of our competitors. In most cases they merit our attention with a view to adopting them ourselves.

The introduction of packages different from those in general use in British Columbia affects us materially. British Columbia shippers have, until recently, when shipping prunes in peach boxes used the four-inch box. This package was fairly satisfactory and was identical with the peach package being used for prunes by our competitors. During the season of 1914, however, our competitors placed prunes on our markets in 3½ inch peach boxes. The price of our prunes is largely controlled by the quotations from competitive points, which resulted in our 4 in. peach box having to compete with the 3½ in. box as far as price was concerned. It was a surprising fact that, generally speaking, the wholesale trade could not get any more for our 4 in. box than they were getting for imported 3½ in. boxes, notwithstanding that there would be about 8 lbs. more fruit in the 4 in. package. The retail merchants claimed that it was impossible to impress the housewife purchasing prunes that she was getting better value in the 4 in. box at an advance in price over the 3½ in. package. To her it was a box of prunes, and she purchased the 3½ in. if the price of the 4 in. was higher, thereby obtaining imported fruit. It is, therefore, obvious that if the merchant was obliged to sell a 4 in. box at the same price as a 3½ in. one, he could not afford to pay any more for it. In many cases I believe this resulted in his buying our competitors' prunes. The wholesaler, in his turn, was unable to pay more than he would for the smaller package, with the result that the f.o.b. price of our prunes was affected. The only manner in which this condition could be met was by our shippers adopting the 3½ in. package, which was practically impossible at that time, as box material was already purchased. The unfortunate situation during 1915 was that some of our shippers adopted the 3½ in. package and were able to quote lower than those using the 4 in., which had a tendency to reduce the price of the 4 in. to that of the 3½ in. This condition is liable to arise at any time unless our packages are standardized. Assuming that all British Columbia shippers adopt the 3½ in. peach box for prunes, we have no assurance but that our competitors may appear with a 3 in. box, unless we standardize our packages.

Strawberry Crates.

The same condition existed on the prairie markets regarding our four-fifth crate for strawberries, and other fruit packed in this package. The season of 1914 witnessed the introduction on our markets of the 24 pint berry crate from Washington. At this time our shippers were using the 24 four-fifth crate, or the 24 two-fifth crate for berries. The 24 four-fifth crate was used for strawberries and came into direct competition with the 24 deep pint from Washington. The cubic contents of our 24 four-fifth crate is 1330 cubic inches, while the 24 pint crate is only 806.4 cubic inches. In other words, the package we were obliged to compete with was approximately only three-fifths the size of the crate we were using. For this reason then we could reasonably expect for similar quality fruit, as well packed, that our package should sell for two-fifths more than the deep pint. Generally speaking, on our prairie markets, the four-fifth package sold for the same price as the deep pint. There were a few exceptions to this; in some cases 25c a package more was realized for our four-fifth, as compared with the imported deep pint.

At first thought it may appear difficult to realize how this could happen. The imported pint crate predominated in our markets. It is a neat, attractive package; the berries shipped well were well packed and faced, and the package immediately became popular. This resulted in the retail merchant preferring the pint package, and eventually it was difficult for him to obtain more for the four-fifth than for the deep pint hallock, as the pint hallock set the retail price for a box of strawberries. In conversation with retailers they have advised me that customers have objected, if a higher price was asked for the four-fifth, stating that their competitors were selling strawberries cheaper. The merchant's explanation that the hallocks were larger packages available nothing. The result was he purchased the 24 pint crate and saved himself the trouble of having to make lengthy explanations to his customers, as he often had to do when he sold the four-fifth. The direct result of this was that we were compelled to use the 24 pint crate. Unfortunately it was not possible to do this in 1914, as box material was already ordered, but in 1915 some of our shippers used this package, with good results. It would appear then that we have everything to gain, as far as British Columbia is concerned, in adopting the 24 deep pint package in place of the four-fifth. The package can be used with advantage for all the purposes that the four-fifth has been used for previously. In regard to this package our competitors have still another advantage over us. The strawberries and cherries are faced. Approximately there are 16 square inches to be faced in the deep pint

while the four-fifth has an area of about 25 square inches. It is therefore obvious that our competitors can face their package considerably cheaper than we can our four-fifth. The main point, however, is that were packages standardized everybody would be on an equal basis as far as packages are concerned.

Our 24 two-fifth package, generally speaking, is not popular on the prairies. This package is used chiefly for raspberries, and, owing to the very shallow hallock, which is only one inch in depth, the bottom of the container is often exposed. This is especially the case when the berries receive a jolt in transit, which is often unavoidable. The impression given to the consumers is that they are not receiving value. I have often received complaints and enquiries as to whether the package was a legal one. My assurances that it is a legal two-fifth hallock apparently have not satisfied those enquiring, who, in every case, have been consumers. Practically our only competitor with this package is Puyallup, who uses the shallow pint, which measures 1¼ ins. in depth. The additional one-quarter inch has made a great difference in its appearance on arrival, with the result that the shallow pint has found favor and is to be commended for raspberries. Some of our raspberry shippers have realized this and have been using it. Unfortunately, with the smaller package also in evidence, they

(Continued on Page 226.)

Packing the 1916 Apple Crop

D. Johnson, Dominion Fruit Commissioner, Ottawa, Ont.

IT is evident that the apple crop of Ontario and Quebec will be of very low grade. The time is opportune, therefore, to advise the trade to use every precaution in seeing that they place upon the market apples properly packed and of such quality that they will not be ruinous to our markets.

It would appear that the apple crop is much the same as last year. The quantity will perhaps be a little less and the quality of even lower grade. This would indicate that there will be but a small proportion of No. 1 fruit, and that most of the apples which will go into consumption must be graded No. 2 and No. 3.

For Nos. 1 and 2 we predict a good demand and we believe the consuming public will be willing to pay a reasonably high price for apples of these grades. For good No. 3 apples there will also be a strong demand, but it is very important that they should be good No. 3's and not similar in quality to much which was packed last year.

The season of 1915 is still fresh in our minds. It will be remembered for many years by the dealers who bought and packed No. 3 apples, much of which were nothing more nor less than trash. This fruit could not do anything but depress the market and cause losses to all who handled it. The expense of picking, packing and marketing a barrel of poor No. 3's is the same as it would be in the case of a barrel of good apples, and why so many growers and packers will persist in packing this rubbish is more than I can understand.

Unfortunately the Fruit Inspectors have very little control over the packing of No. 3. The law requires that they shall be honestly faced, and that the face or shown surface shall be a fair representation of the contents of the package, but further than that we have no control. This means that apples of the most miserable quality, as long as they are honestly faced, may be graded No. 3. It is such fruit as this which caused the slump in apple prices last winter.

A good pack of No. 3's, namely, apples well matured, well colored, sound, but affected with scab, is in demand and would serve a good purpose. Some packs of No. 3 are as serviceable as No. 1 or No. 2, for while the scab prevents them from long-keeping, yet with proper storage they supply the demands of the consumers at fair prices.

At the commencement of this season I, therefore, urge all packers of fruit to refrain from packing such low grade apples as many did last year. It is much better to sell such apples to the cider factories, or feed them to stock, than to allow them to go on the market, making returns which scarcely cover operating expenses. More than that, the marketing of inferior fruit will turn the public from our own apples to western packs, upon which they can always rely, and from which they always receive value for their money.

The returns from this year's apple crop are in the hands of the packers. If they fail to live up to their opportunities, and still persist in flooding the markets with low grade fruit, they will experience another year of disappointment similar to 1915.

The advent of the cooperative movement in Nova Scotia has largely revolutionized packing methods in the province. The interior of the packing house at Kentville, N.S., is here shown.

Harvesting Apples

Prof. W. G. Brierley, University Farm, St. Paul

The proper time to begin picking the apple depends upon the season of the variety, its behavior after picking, the color of the fruit and the marketing plan. Summer and early fall apples should be picked and handled much the same as pears, as they are perishable and "go down" rapidly. The Duchess is an example. This variety should be picked when it has made good size and color, but before any softening begins, but never before it is well developed, as it will shrivel badly. Successful marketing of the Duchess depends very largely upon firmness, as soft apples of this variety bruise readily and settle in the barrel, giving a poor appearance. Varieties

Commercial thimbleberry plantations in Ontario are not numerous. This one is owned by Robt. W. Riggs, Arkona, Ont., one of the largest fruit growers in Lambton County.

maturing later in the season also benefit from a close study of picking needs. Immaturity or over-maturity should be avoided, as the fruit will not hold up if kept on the market long. All apples are best picked when "hard ripe"—fully developed in size and color with the seeds colored a light brown.

Picking should be done carefully, so that bruises are few. Lift and twist the apple from the spur and do not pull it off. Pulling often pulls out the stem and hastens decay or pulls the spur off so that future crops are picked at the same time. Do not grasp the apple tightly, as this may bruise it. Use the whole hand and grasp just firmly enough to pick. Various picking devices, such as baskets, pails or sacks, are available. In general, baskets or pails are better than sacks, as there is less danger of bruises from swinging against the ladder or tree. The best type of device is a basket or pail lined with burlap or canvas to prevent bruising, and with a swinging bottom which can be opened to empty the fruit gently. This eliminates much of the bruising which comes from pouring the apples from a basket or pail. The receptacle should not hold more than a half bushel and smaller sizes often secure greater freedom from bruises. Picking by hand is much better than with patented devices on the end of poles. It is far better to use a good ladder to get up to the apples than to bother with a pole and picker.

After picking, the apples should be taken immediately to a cool, well ventilated cellar or shed where grading and packing can be done conveniently. Leaving the fruit in piles in the orchard ripens them too rapidly and often causes shrivelling or early decay.

Raspberry Packing for the West

Edwin Smith, Grimsby, Ont.

IN previous years trials have been made with the shipment of precooled raspberries by refrigerated freight from Grimsby, Ont., to Winnipeg without success. Failure may be attributed to an unsuitable package (the 24 four-fifth-quart crate) and to the length of time in transit. This led to the Dominion Cold Storage Division making a test of precooled raspberries by refrigerated express in July, 1916, which was very successful. The success of this shipment as well as that of a refrigerator freight shipment to Sault Ste. Marie in 1916, was founded upon the condition of the berries this past season and upon the use of the 24 in. shallow pint crate as much as it was upon the use of the express method of despatch.

The price of raspberries in Winnipeg ranging between three and four dollars per 24 in. pint crate during the entire season and the chief competitive sources of raspberries being Puyallup, Wash., and Mission City, B. C., and having their raspberry seasons usually earlier than the Niagara Peninsula, are facts that point toward increased efforts in placing Ontario raspberries in western markets. These efforts will be futile if as much attention is not devoted to the proper packing of the berries as to their refrigeration and despatch.

Ordinarily raspberries do not receive much attention in packing because of the simplicity of the operation, it being done by the pickers in the field. Their packing is neglected on this account. Good packing of raspberries requires, first, good fruit, second, strong, attractive packages that are suitable containers, third, frequent pickings very carefully done, at which time the boxes are well filled, fourth, an inspection of the boxes before placing them in the crates, with a checking system whereby careless pickers may be "jacked-up."

The 24 in. shallow pint crate is the most attractive and thoroughly suitable package that can be used. It contains a fair amount of berries but the boxes being but 1¼ in. deep and held in the crate by sustained decks in two tiers only, carry them with a small amount of jamming or mashing. The boxes hold a full pint, so that the "false bottoms" are not really false if the consumer knows that a pint is being purchased instead of a quart. Comparing the quantity held with that of the Ontario 24 four-fifth quart crate, in actual practice three four-fifth quart boxes would fill five pints. The gross weight of the filled crate is 23 pounds. About 100 crates could be efficiently loaded in the ordinary refrigerated express car,—pointing to the need of a lower carload weight minimum (at present 20,000 lbs.). The cost of the shallow pint is 17c. complete in British Columbia; 26c. made up and laid down in Ontario in carload lots.

All efforts at western shipments will fail without careful picking, removing the berries from the bushes without injury to the flesh. Berries used in our 1916 demonstration were fairly satisfactory as far as careful picking was concerned, but growers fell down badly in not filling the boxes well, which sold for 25c. less per crate than they otherwise would have sold. Raspberries settle heavily and boxes must be filled above the level full before leaving the fields, else in driving to the precooling plant they will settle so that from a quarter of an inch to the whole depth on one side of the box will show, giving the consumer the feeling that he is being robbed both on the top and on the bottom of the boxes, whereupon buying will fall off.

Frequent pickings are essential that stock will not contain over-ripe and dried-up berries, neither of which should be allowed in western shipments. Without watching the berries as they come from different pickers the help gets slack and works carelessly. When it is found that a picker is injuring fruit by pinching or clutching with finger nails the remedy is obvious and must be applied firmly.

The hope of the future for Ontario fruit growers lies along the line of extended cooperation.—Prof. Crow.

Apple Orcharding Should Be a Main Line

P. W. Hodgetts, Provincial Horticulturist, Toronto, Ont.

ONTARIO, the premier province in the Dominion of Canada, boasts of more apple trees than all the other provinces combined. In 1911 she was credited with 6,710,033 bearing and 2,073,576 non-bearing trees, a total of 8,783,609 trees out of 15,217,176 trees in Canada. Her production in a normal season is more than twice as great as that of all the others combined owing to the fact that three-quarters of her acreage consists of full-grown heavy bearing trees. In British Columbia on the other hand, only about one-third of the trees are in bearing, while even her bearing orchards are still young and not yet up to the maximum yield. The figures given have always created great pride in our standing as a fruit producing country.

A careful analysis, however, will prove that while we make a good showing in the census reports and are still by long odds the greatest factor in the apple business, great improvements are imperatively necessary if we are to retain our position. Our supremacy in the growing of grapes and peaches is, and will continue to be, beyond question. Costly experience has taught us the necessity of growing fewer varieties, in larger quantities, in those districts only that are best suited to such fruits. With the apple, on the other hand, we have planted far too many varieties, on all kinds of soils, and without particular regard to the suitability of the section for the purpose. For these past mistakes we should be forgiven. Most of the orchards were set out over thirty years ago when reliable advice was hard to secure, or in fact, did not exist. Markets were limited and more or less local; a succession of varieties was needed to supply customers throughout the season; no experimental work with the varieties as to their hardiness, quality or bearing habits had yet been undertaken. Yet it was with these and many other handicaps that our fathers had of necessity to start orcharding. What wonder then that mistakes were made! Fancy what nerve those men had who planted the larger of the many orchards that have made a name for Ontario as an apple country.

One noticeable feature of the industry which applies particularly to parts of Western Ontario is the large number of small orchards of one or two acres in extent. Take Middlesex as an example, having, according to the last census, some 364,793 trees and rating, therefore, as an important apple growing county, yet we find that the average size of the orchard is less than two acres. Never intended to supply apples for other than home use, with a surplus for friends and neighbors, the aggregate of the trees has been so great that in years of good crops, thousands of barrels are available for shipment to points outside the county. Only, however, through the agency of the small local associations has this become possible, and at that, the task of gathering, sorting and selling the fruit from scores of varieties is a serious and expensive operation. Then in years of light crop these associations cannot secure enough fruit to make it profitable to ship in carlots, resulting in loss of customers and inconvenience generally to the trade.

One serious feature of the small orchard on the average farm is that in times of labor stress, especially in the spring and early summer, the apple trees are neglected that the land may be cultivated and the seeding done. Spraying, one of the most important factors in producing good fruit, comes on during this busy season, and is almost sure to be set aside in favor of the more important—to the average farmer—work on the grain crops. Even if in favorable seasons the 100 odd trees in the orchard bring in more money than many of the best and biggest fields on the farm, the temptation is always strong to take care of the grain and the roots, as the apple trees will still bring in some return no matter what attention they do or do not receive.

In another way, the general farmer too often favors his fields at the expense of the orchard. His stock only produces a certain amount of manure during the year, and his rotation of crops is so arranged that this is all used to advantage on the fields. His trees are deep-rooted and despite the lack of applied fertility still bear fair crops at least semi-annually—so why worry! Yet, ten tons of this manure applied annually to every acre of the orchard would give returns double that received from the land, but the broad expanse of wheat and oats, barley and corn and potatoes is his first love and last, and who can blame him anyway, for he has been brought up to believe in these crops as his salvation?

So we come naturally to the conclusion that apple orcharding may not, and usually does not, succeed best as a side line. Now do not think that I believe the apple orchard should constitute the sole source of income from the farm. Far from it, as lean years are bound to come as well as the good. It is better not to have all your eggs in one basket! Yet we should have enough eggs in that one basket to lead us to handle it carefully. In plain words, let us have sufficient acreage in apples to make it worth our while putting on it the necessary labor at the proper time, believing that we will secure better returns for that labor than if spent elsewhere on the farm. Let us go into it determined to secure from our

A good picking of Burbank and Abundance plums ready for market as gathered in the orchard of F. Bell & Sons, Burlington, Ont.

Ontario has many fine orchards and also many old ones that are the reverse. What is wanted are a million good trees to replace a million such as those here shown.

orchards a big part of the revenue that is coming for our year's operations and there will then be no thought of skimping the labor or the manure or anything else neeessary to make it the success it should be.

"What acreage should be planted," some may ask, "to accomplish this purpose?" Ten acres in my opinion would be the minimum for economical operation. This would give the grower some 350 to 400 permanent trees with an additional number of fillers should such a system of planting be approved of. One power sprayer could be advantageously used; and sufficient packages would be required that labor could be kept busy in the winter preparing them. A few ordinarily slack weeks in the spring could be profitably put in pruning; and the picking, packing and other work would require from the owner sufficient time to make him appreciate the importance of giving the orchard the best management possible expecting good returns.

Varieties.

As to varieties much depends on the markets to which one expects to cater. Ben Davis are not wanted on the prairies, while Golden Russets are not rated higher there than Baldwins and Greenings. Spy and Snow are held in high esteem in these western markets and in many cases sell the balance of one's pack. On the other hand, the Russett outsells the Spy in Great Britain and Stark and Ben have made good money for the growers there. South Africa asks for Gano, Wealthy and King while Montreal will pay higher prices for the McIntosh and Snow. Of the early apples Duchess are in good demand for both east and west, while Wealthy, if of good size, also sell well.

For fillers in an orchard it is imperative to plant such as are early bearing, including Duchess, Wealthy, McIntosh, Gravenstein, Hubbardston and Wagner. The last three mentioned are not listed above, yet are worthy of a place among the fillers and will sell readily at fair prices.

Do not plant too many varieties, six at the outside, unless you are near a large local market to which you can ship economically by express in small packages or can haul by wagon or truck in barrels or boxes. Where you expect to sell through an association or individually in car lots, few varieties and those largely the standard winter kinds will help a great deal in the marketing. In the eastern part of Ontario, the season is sometimes so late that varieties like the Spy will not ripen in time to permit of safe shipment to the west. Growers there have wisely made a specialty of those kinds best suited to the export trade or that ripen early enough for shipment to any market that may prove attractive at the time. Early Duchess are in demand for the north and west and a profitable business in this variety should be worked up in the more southern parts of Ontario. Car lots are required and enough growers at any one shipping point should combine to produce this variety for that trade. For several years there has been a constant demand for Duchess which we have not been able to supply.

Readers of this article may raise the old question of overplanting. Undoubtedly we have too many orchards of the type first described, but these are fast passing away. Those that may linger on will be driven out of the running by competition, if not from Ontario then from the orchards of Nova Scotia, British Columbia or the states to the south of us. We should not give up the splendid markets that we have secured under such great difficulties when our advantages are as great, if not greater, than the other districts named. The members of the many small associations in the western counties might well plant cooperatively ten acres or more apiece, looking to the future welfare of their community.

A bigger vision is needed than we have had in the past, such a vision as inspired the splendid orchards in the southern part of Halton and the lake townships of Northumberland and Durham, where the size and character of the orchards is the feature that attracts the best buyers, and where apple orcharding is not the side line it is in so many other sections. Here we find men who give up even a profitable dairy business to give their attention to a still more profitable apple business. Why should we not have scores more of such men in Ontario? Then we could indeed boast not only of the quantity and quality of our fruit but also of its permanence.

Sweet Cherry Difficulties*

S. H. Rittenhouse, Jordan Harbour

There are several reasons why sweet cherries are not more commonly grown. These are due mostly to difficulties connected with their growth. Among these are the following:

They are hard to transplant successfully from the nursery. They require a special kind of soil that is not common, and take considerable time to come to bearing. Sweet cherries are fairly susceptible to insect and fungous diseases, and their market is much more limited than for grapes and peaches.

Brown rot is the worst disease of the sweet cherry. Sometimes the crop is lost in twenty-four hours after everything possible has been done to make it a success. A fairly deep, well drained soil is required for them, more so than for peaches. I could probably count on the fingers of my hand the successful extensive growers in the Niagara district. I favor planting in the fall if care is taken to protect the tree during the first winter. If they can be planted very early in the spring they will do all right, but otherwise they had better not be planted at that season. Our orchard has good air drainage, which protects it against frost.

We must put up our fruit in boxes if we are to hold the western market.—C. J. Thornton, M.P.

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* An answer given at the last convention of the Ontario Fruit Growers' Association to a question asking why sweet cherries are not grown more extensively in Ontario.

The Grounds and Gardens of Craigleigh

Mrs. R. B. Potts, Hamilton, Ontario

TUCKERMANN said that "to analyze the charm of flowers is like dissecting music; it is one of those things which it is much better to enjoy than to attempt to understand." This verdict I heartily concurred in when, after returning from enjoying some hours at "Craigleigh,"

The pergola at Sir Edmund Osler's is lined with yellow and dark coleus and is covered with all kinds of hardy creepers and roses.

the beautiful home of Sir Edmund Osler, in Rosedale, Toronto, a garden lover asked me "what had impressed me most when visiting the garden?"

Some one has wittily but truly described the gardens seen on this continent as follows: "Too often the American garden is likely to resemble the literature of the period, in being striking, curious or wonderful. Often it is of the "look-at-me kind," made to be stared at.

"Craigleigh" is "wonderful" and "striking," but it is far from being in any of the classes named. It is as distinct from these, as a work of art is from a crude chromo. The thing that most impressed me on the occasion of my first visit to this garden and which has been re-stamped on the memory at each recurrent one, is the quiet, restful harmony of the whole—the complete balance of all the parts. "How restful!" was the first thought to shape itself definitely, though it might reasonably be expected that "How beautiful!" would have been the first, for beautiful it has been at all times and seasons, when a visit has been a happy possibility.

The pen pictures here given have been "drawn from memory." They consist of a series of "memory sketches" rather than a drawing from a "single sitting"; the main features remain, but details differ with the seasons. The first problem has been just where to begin, as there are many phases, each worthy of a separate article.

Let us start with the herbaceous border, which sweeps in dignified curves from the gates, skirting the velvety lawn until it reaches the conservatories. This border, at every visit, reveals new pleasures to a flower-lover. Here are new combinations which invite study and merit the praise bestowed; groupings lovely in their harmony; individual plants which attract attention and hold the visitor to "worship at that shrine." It is safe to say that some of the deepest pleasure found here comes from the fact that all the old-time favorites are not "conspicuous by their absence"; and that size—or should one say bigness, since the "big" is so lauded to-day—of bloom does not always cause the verdict of banishment to be executed. Here, too, single varieties dare to proudly lift their heads, though the popular acclaim is for "double." One may see also new varieties of old favorites, so if the old order passes, giving place to the new, it is because the new is really worthy. Throughout this long border there has never been a single jarring note, at any time observed, and though touches of strong color are at times introduced, they are but to tone up the softer and less striking ones, and so prevent "weakness." In this border foxgloves have revealed themselves in more than ordinary beauty, for the beautiful primrose colored ones neighbor with the soft rosey mallows, while just beyond the glorious blue of the delphinium and stately hollyhocks made a lovely background.

At the rear of this border, from the entrance to the houses just beyond the steps into the formal, paved garden with its fountain, bright with gold fish, comes the shaded walk—the pergola—to stroll down which on a bright, sunny day, proves a joy to be remembered long afterward. On the right, looking over the wide border, many choice bits are revealed—it may be the sweep of the lawn, with its magnificent trees, or some new view of the occupants of the border. On the left is the rockwork with its floral adornment of ferns, aubretias, columbines and other favorites, until the gate of the vegetable garden is reached. Then comes the revelation of the useful-beautiful, and here one can join in Mr. Allan's, the head gardener's, enthusiasm, as he points out the large and varied collection of vegetables that are grown.

Returning through the pergola, before reaching the path to the paved garden or greenhouses, one notices the potentillas, with their strawberry-like leaves and dainty flowers, with ranunculus, and pansies in the niches, and the corners with ferns and auriculas and other delightsome things.

At "Craigleigh," one bright spring day, some time was spent very profit-

The chrysanthemums in the conservatories at Craigleigh last fall were a delight to all who saw them.

Larkspur in the garden of Mr. J. H. Bennett, Barrie, Ont.

ably among the tulips. Among the many fine blooms in a collection of over a hundred varieties were Fairy Queen, Don Pedro, Rev. Ewbank, The Fawn, Mme. Krelage and Loveliness. It is hard to select the finest, when all were so lovely.

Cowper wrote:—

"Who loves a garden loves a greenhouse, too,
Unconscious of a less propitious clime,
There blooms exotic beauty, warm and snug,
While the winds whistle and the snows descend."

This describes the conservatories at "Craigleigh." What a treat they have been! Take the November visit, when the chrysanthemums were in flower. Who could ever forget the glory of the conservatory after the privilege of a view? 'Mums there were of every size, from huge balls to tiny pompoms, and colors from the dark and the tawny, down through the pale pinks and yellows to white—yes, and the green 'mum was to be seen also. All this veritable feast of color was most skilfully arranged, and not a single instance of unpleasant adjustment was observed. A visit to the same spot later when the calceolarias have the stage, and again it is found to be truly a "sight for sair een."

At this time the background is of the schizanthus, in all its dainty, airy beauty, suggesting a swarm of butterflies-orchard-like flowers in a fine range of coloring, with occasionally an Easter lily, magnificent in its stately purity, or, a mass of tulips to "give a tone." The centre was reserved for the calceolarias, those quaint shaped blooms, interesting if not "universally" loved, perhaps because one's introduction to these flowers happened to be through some of the horrid tomato red, splotched or strong yellow varieties. Those found here were not of such crude coloring, but in shades of apricot, terra cotta, rose, white and other delicate tints.

The other houses were interesting, too. In one were orchids—the cattleyas, while beyond other varieties were the Gloriosa superba Rothschildiana (or climbing lily) with its bright yellow flowers which change to red, and Darwin tulips for "fillers" or cut bloom. In another section the gloxinias were just opening, revealing the dark velvety flowers, soon to rival the calceolarias then in the first place. On another occasion the Allamanda, with its large golden cups and the fragrant white flowers of the jasmine gracillimum were the features that called for attention.

Time and space will not permit of further description, but mention must be made of the grape house, beautiful with its luscious bunches of purple and white fruit. It had been said to me, before I knew the successful grower of these, that "Mr. Allen was the last word on grapes." One can readily believe this after a visit to this section of the houses. Here, too, strawberries and melons are "specialties" among many other luscious things.

The rock-garden and the paved garden must be passed with just a mention of them, as must the roses, sweet peas and many other features, not for lack of appreciation, justly merited, but time and space do not permit of more extended reference.

Maurice de Guerin has said, "Every time we allow ourselves to be penetrated by Nature, our soul is opened to the most touching impressions." After one has enjoyed such grounds as those of Sir Edmund Osler's beautiful Craigleigh, one realizes the truth of the words:

"Not a tree,
A plant, a leaf, a blossom, but contains
A folio volume. We may read and read
And read again, and still find something new,
Something to please and something to instruct."

Plant Paeonies in September

Henry Gibson

SEPTEMBER is the time to plant paeonies. Of all hardy perennials the paeony is perhaps the most desirable. It is practically immune from disease and insect pests. Moreover, it is as lovely as a cut flower as it is for landscape effect.

The paeony is a gross feeder. The richest soil is none too good for it. The strongest stems and the largest flowers are produced when it is planted in situations where a moderate degree of dampness is maintained. When preparing the bed, turn out the soil to the depth of two feet, discarding the bottom or sub-soil if it is not of a desirable character and replacing it with good rich soil from another source. A layer six inches deep of good manure should be put into the bottom of the excavation, and spaded in, if the subsoil is good, and a liberal quantity of well decayed manure added to the soil as the work of filling up proceeds. Round up the earth until it stands about eight inches above the surrounding ground, as it will settle a good deal in a few days.

Abundant room should be given to each paeony plant to develop into a large specimen. Three feet each way is not too much for them. Place the crowns from three to four inches below the surface and firm the earth well about the roots. Never allow the crowns to come in contact with manure that is at all green, in fact it is dangerous to use green manure. None but well decomposed manure should be used. After planting, the beds should be covered with strawy litter and leaves to prevent drying out until the roots start to get active.

Many of the new varieties of paeonies have descriptions that are tempting, but it does not follow that because a paeony does well where it was born that it will do well everywhere. Not by any means; few things are as deceitful as new paeonies. They should be tested for years in different parts of the country, before they are finally put on the market as a commercial product. We know of an enthusiastic gardener who paid a handsome price for one of the most beautiful double paeonies he ever saw, and gave it a name right there, and behold the following year it bloomed a poor single. So runs the inexplicable vagaries of the paeony.

Herewith is a list of six varieties that will do well in almost any home garden:

Albert Crouse, (light pink), late.
Couronne, d'Or, (white), late.
Edulis, Superba, (dark pink), early.
Felix Couse, (crimson), midseason.
Festiva, Maxima, (white), early.
Mons, Jules, Elie, (light pink), early.

Plan Now For Paeonies Next Year

C. Mortimer Bezzo, Kitchener, Ont.

WHO of us do not recall with warm affection the "Piney" of our grandmother's garden, with its wealth of magnificent red bloom. For many years this grand flower shared the fate of most of its contemporaries and dropped in popular favor. But here, as elsewhere, "virtue alone stands fast," and the inherent qualities of this flower under the law of the survival of the fittest, not only saved it from extinction, but are today bringing it into its own. This superb flower will soon occupy the high place in public esteem that nature designed it should. Its hardiness and ease of culture, its sweet, delicious fragrance, its manifold grand forms, its multiplicity of tints and colors—in one word, its gorgeous display for years—insure for it a high place in the esteem of flower lovers for all time to come.

The catalogue of paeonies is large, over one thousand varieties being listed. A solid phalanx of paeonies, ten or fifteen acres in extent, containing over twenty-five thousand plants, embracing all the shades and colors known, is a sight long to be remembered, and one calculated to kindle within the soul of the most callous a more fitting degree of appreciation. As a cut flower at weddings and other ultra fashionable gatherings the paeony is becoming the rival of the carnation and the rose. Many growers place the buds in cold storage and bring them into bloom as late as August for these special fetes.

A nice paeony garden can be had at a very moderate cost, as the better grades of plants can be bought for 25 cents up to $1.00 a piece. Occasionally one hears of a record price being paid for a plant, as a few years ago some one paid one thousand dollars for a plant of the Jenny Lind—a fine pink variety.

The paeony, like the rose, is very particular about the location, and the kind of soil in which it grows. It should never be planted among shrubbery or trees, or on the north side of a building, as plenty of sunlight and air are necessary to get the best results. If planted in the border around the house do not plant too close to the wall, but allow plenty of room for perfect development. Two feet at least should be given as the plant will grow and spread rapidly.

To have this plant come anywhere near its best it must be planted in a good stiff clay soil. As the paeony under proper treatment will live and bloom and increase in beauty every year for many years, it pays to properly prepare the soil at the outset. September is the time to plant, but where it is possible the bed should be prepared in the spring or early summer, or as long before planting as possible. When barnyard manure is used this early preparation affords a better opportunity for the fertilizing element to become thoroughly decomposed and assimilated with the soil. In any event have a sufficient quantity of properly prepared soil to surround the plant to a depth of several inches at the time of planting, so that the new roots will not come in contact with the fresh fertilizer. The soil should be dug to a depth of eighteen inches to two feet, thoroughly mixing in manure in proportion of one part manure and two-thirds soil. If the soil is light and sandy re move part of it and replace with the same quantity of clay.

Where well rotted manure cannot be obtained use pure bonemeal or bonemeal and potash. Where manure or pure bonemeal is used a two-inch layer of hardwood ashes, mixed thoroughly through the soil, will be a great help. Have the bed slightly raised so that water will drain away during the winter and early spring.

As before stated September or October are the months in which to plant the paeony, although it may be done any time between the period of the completion and its annual growth, which is about the last of August, and the starting of new growth early in the spring. There is great risk in moving this plant after new growth has once commenced, and this should never be done except in cases of absolute necessity. At the time of planting, if the ground is dry, give it thorough watering. The soil for the first year after planting should be kept moist at all times, but never wet.

Early each spring when new growth is making its appearance loosen the surface soil to a depth of several inches for a foot around the plant. Repeat this after each rain or watering as soon as the soil is dry enough for the purpose, and keep it loose and fine throughout the summer. If there is danger of frost after the buds have formed protect them with blankets, boxes or barrels, or anything that will answer the purpose.

If dry weather sets in before the time of blooming give plenty of water. The paeony during the blooming period will consume a tremendous amount of water. Keep the surface of the bed level around the plant so that all water will be utilized. Just before the buds make their appearance give liquid fertilizer and give it once a week until they are in full bloom.

If extra large bloom is desired remove about one-third of the buds as soon as they appear. If the bloom is desired for cut flower purposes the

A wealth of bloom in the garden of T. H. Wadland, Hamilton, Ont.

This fine specimen of crinum was grown by Walter T. Ross, Secretary of the Picton Horticultural Society. The flowers are white and slightly fragrant.

buds may be cut just before they are ready to open, and if placed in a refrigerator or cool, dark cellar they may be brought out at intervals when they will expand as perfectly as when on the plant. Change the water every day and remove a small portion of the end of the stem with a sharp knife. After the blooming period is over give water less frequently, allowing the plant to complete its annual growth leisurely. During the month of August do not water at all unless the drouth is very severe.

Early in the fall dig in around the plant a good dressing of well rotted manure or pure bonemeal. Dig it in several inches deep, mixing thoroughly through the soil. After freezing weather sets in bend the old tops down over the roots and cover all with a three or four inch layer of half rotted manure which may be left as a mulch in the spring, dug in, or removed as desired. In all spring operations the greatest care should be exercised not to injure or disturb the plant.

One of the all-important features of strawberry growing is plant quality. When we understand that runner plants inherit the characteristics of the mother plants which produce them, we will then realize the importance of setting plants that have been produced by carefully selected and highly bred mother plants.

September Activities in the "Home Garden"

Geo. Baldwin, F.R.H.S., Toronto

SEPTEMBER, although it sees the end of the growing season, is really a busy month. The amateur, who is up to date, will find plenty to do in taking care of this season's matured crops and preparing for next year's. There are many things that may be done, but there are two things that must be done, namely, to plant new, or transplant old paeonies, and plant daffodil bulbs, that is, if you do not want to sacrifice next spring's blooms. I noticed several gardens this spring where daffodils did not come to bloom, simply because they were not planted soon enough to get good root before winter set in. Other important items to be attended to, are securing bulb catalogues, making your selections and ordering immediately.

Gather seeds from the best flowers that you want to save, pull up all dead and withered plants, gather all rubbish, and make a bon-fire. Water and cultivate around the flowers that are yet to bloom, such as helianthus, gladioli, chrysanthemums, and roses. Overhaul your shrubberies and perennial borders. Don't defer till the foliage is all gone, as there is danger of pulling up the wrong one. Tie a piece of string or drive in a stake to the tree, shrub, or perennial you wish to dispose of or transfer later on.

Prepare for Frosts.

Be prepared for early frosts, which often visit us at the close of this month. In transplanting and re-arranging the perennial border, take advantage of the opportunity to manure the ground. Where Iris Germanica, phlox and other perennials have overgrown themselves sub-divide and hand the surplus over the fence to your neighbors.

If you wish to make your border a little more attractive next year, discard the common golden glow, for two other rudbeckias which are much more useful and ornamental, namely, R. Newmanii and R. Echinacea. Also put in two or three clumps of Lilium Henryii and Lilium Candidum. They cannot be improved upon for effect and hardiness. Continue to give roses every attention in cultivating, feeding and spraying, if you want roses up to the end of November and again next spring.

If you want flowers in your parlor vases all winter, cut off the sprays of Hydrangia Paniculata, and H. Arborsens. The blooms of all Statices, mixed with Helichrysums, will supply that want and without water.

In the vegetable garden take up all the early varieties of potatoes, cultivate once more amongst the late varieties, cultivate in between rows of beets, carrots, parsnips, turnips and onions, and draw the fine soil around the roots if you wish to avoid the sunburnt appearance which is detrimental for exhibition purposes.

Celery should be ready for a first handling, and must be earthed up slightly now. Keep it cultivated between the rows and feed with liquid manure and nitrate of soda, two tablespoonfuls of the latter to a pail of the former. Continue this until the end of the month, when final earthing up should be done.

Lawns may be renovated or remade now. Use a good loamy soil, equal parts of Kentucky Blue Grass and White Clover, roll well, and keep moist.

It is not too late to make over, or plant a new bed of strawberries for fruiting next June.

Now is the time to take hard wood cuttings of currants, gooseberries and grapes. Tie them in bundles, and insert in the ground deeply for planting out in the spring.

Garden Suggestions

Henry Gibson

BECAUSE it is near the end of the season is no reason why the lawns should be neglected. Now is the time to repair the bare spots Put on some good soil, and get the seed sown as soon as possible. New lawns may be made at this time. The ground should be well worked, and made ready by several deep cultivations which will also kill weed growth. Use plenty of good seed, an average of from five to six bushels an acre will ensure a good stand. Some authorities use more than this, claiming that in doing so they obtain a fine, dense mass of grass almost free from weeds. While it is generally conceded among gardeners that the use of manure is conducive to weed growth in lawns, yet from the standpoint of the average amateur, a good coating of manure is a good way to ensure having a good lawn. Commercial humus is a good substitute.

Herbaceous borders may be overhauled at this time, and one is afforded an opportunity of showing individuality in one's methods. No two borders can be exactly alike. In making a new border the first consideration is the preparation of the ground. This should be done to the extent of turning out the soil to a depth of two feet and replacing it with fresh soil, if that turned out is not good, together with a liberal supply of manure, bone meal, and wood ashes. One cannot have the soil

too rich for the plants, and since a perennial border is a permanent affair, it is the best practice to make a good job of it at the outset. When planting don't make the mistake of setting the plants promiscuously over the whole area. Carry out some definite scheme, for instance, a color scheme of white and blue, make large groups that will produce an effect that will make your neighbors notice how you do things in your garden.

How and When to Plant Bulbs

B. C. Tillett, Hamilton, Ont.

NOTWITHSTANDING the war in the great bulb growing countries and the countries affected by it, especially Holland, there has not been at any time so far any real difficulty in obtaining most of the best known spring flowering bulbs. For that we should be truly thankful. Those who have not already planted their bulbs should lose no time now in getting them in. Whilst a believer in method, I am not a believer in too much method, such as may be discovered in the advice of some "experts" who would have us believe that if things in the garden are not done with mathematical exactitude we are merely courting failure. The expert will demonstrate that such-and-such a bulb, for instance, must—if you want it to succeed—be planted not later than September, it must be planted at exactly such-and-such a depth, it must have certain soils, certain positions, and so on. The result created in the mind of the amateur grower is this, that as he cannot get his bulbs in by September, and as he has no scale to measure the inches by, and knows nothing about the different sorts of soils, or what is meant by "compost," he had better give it up.

Well, now, let us forget about the "Expert" and see what happens. I would wager that more experts have been surprised at results where their advice has not been followed, so far as gardening is concerned, than amateurs have been disappointed through not following that advice. In the first place, a catalogue of "Fall Bulbs" (published by one of the largest and best known firms in Ontario) just to hand, says: "Hints on Growing Bulbs: Commence early in the fall; at the same time we have planted tulips in January and obtained a good supply." The object, of course, in getting bulbs in in good time is that bulbs kept out of the soil for a long time shrivel and lose their vitality. Moreover, early flowering bulbs, such as snowdrops, crocuses, aconite, etc., do better if planted early. If bulbs are got in during September or October there is no reason why they should not succeed provided they are planted in suitable soil and at the depths mentioned.

Narcissi should be got in in September if possible, hyacinths and tulips take no harm left till October, or even November. Nearly all the lilies should go in in October. Gladiolus in April.

The time of planting bulbs given here is what experience has shown to be the best.

Now, about the depth of planting: This depends on size and soil. Bulbs vary greatly in size. Snowdrops should be put in three inches, crocuses two inches, daffodils and narcissi four inches, hyacinths and tulips four inches. These depths, remember, are given merely as a general guide. At the same time they are the depths best suited for these particular bulbs. As regards the soil, it need only be pointed out that in heavy soils it is well not to plant quite so deeply, and on the other hand, to give full measure in very light soils. The distance apart, too, is regulated by the growth of the bulbs; snowdrops and crocuses should not be planted closer than two or three inches; hyacinths, tulips and narcissi six to eight inches; lilies twelve to eighteen inches apart.

The best tool to use when planting bulbs is a dibbler with a blunt end, or a trowel. For the small bulbs a dibbler is much the better tool. A dibbler can readily be made from a stake. It should be cut so as to be about twelve inches long, and should be about one and a half inches thick. A short piece can be fixed across at one end for a handle. An old spade or fork handle is a most convenient thing, of which to make a dibbler. Holes should be bored through the handle at intervals of an inch, large enough to admit of a small peg. If the bulbs to be planted have to be planted three inches insert the peg in the third hole and push the dibbler into the soil as far as the peg. In this way every bulb is planted at the same depth. Do not point the dibbler as that will leave a vacuum at the bottom of the hole.

Nowhere do bulbs flowering in the spring look so well as in grass. Indeed, many bulbs do far better in grass than in a cultivated border. When planting them in grass scatter the bulbs about and dibble them in where they lie. After planting fill up the holes with good soil and tread down firmly with the foot. The most pleasing effect with bulbs is where they are planted broadcast or in informal groups. Planting them in rows closely packed together spoils the effect.

It is more difficult to arrange bulbs in borders with pleasing effect, as here the size and coloring of other flowers must be taken into consideration. The only safe way is to plant them in different parts of the borders so as to give balance in the border at the different seasons, which would not be the case were all the spring bulbs planted in the front which seems the natural thing to do.

As already mentioned bulbous plants look better in groups than scattered in hills, and it is wiser, as a rule, to plant a clump of one kind than a mixed mass. One exception at least is in the montbretias, which look far prettier mixed than in separate groups of one color.

Sweet corn eleven feet high and other products of the garden of Arthur Walker, Cobourg, Ont.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated The Canadian Bee Journal.
Published by The Horticultural Publishing Company, Limited,

PETERBORO, ONTARIO

H. BRONSON COWAN, Managing Director.

The Only Magazines in Their Field in the Dominion

Official Organs of the Ontario and Quebec Fruit Growers' Associations and of the Ontario, Manitoba and New Brunswick Beekeepers' Associations.

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1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests. The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, and of The Canadian Horticulturist and Beekeeper, $1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising rates, $1.40 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December 1915. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 13,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1915	11,158	August, 1915	10,294
February, 1915	10,942	September, 1915	10,067
March, 1915	10,864	October, 1915	10,017
April, 1915	10,917	November, 1915	9,704
May, 1915	10,927	December, 1915	9,253
June, 1915	10,329		
July, 1915	10,448	Total	124,920

Average each issue in 1907 6,627
Average each issue in 1915 10,410

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not apply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honorable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed

THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

Government Interference

When the advisability of asking for legislation to regulate the size and construction of the much-discussed "Economy" apple crate was under consideration at the last annual convention of the Ontario Fruit Growers' Association vigorous exception to such action was taken on the ground that there is too much government interference now in matters of that character, with the result that the liberties of the individual have been curtailed and freedom of initiative hampered. The charge was made that certain government regulations have injured, not aided, the industry. While there is much of truth in these contentions, the history of the progress of the fruit industry indicates that in due time users of the Economy crate will have to submit to governmental regulations concerning its size and construction, in order that it may become standardized in just the same way that the construction of other packages has been regulated in the past. In addition it is safe to state that the vast majority of the laws that have been enacted in matters of this kind have proved of distinct benefit, both to the individual and to the community.

When the people of the nation to our south broke away from the mother land and established a government of their own they were so apprehensive that the government of the country might drift into the hands of a few people and thus result in monarchical conditions being reestablished on this continent, they went to the other extreme and endeavored to have practically all the power placed in the hands of the people. The rights of the state governments as against those of the national governments were jealously guarded. The result has been disastrous in many ways. To quote only one out of many instances that might be cited, the people of the United States to-day are unable to enact legislation such as our Dominion Fruit Marks Act, because their constitution leaves the regulation of all such matters in the hands of the state governments. Some states have endeavored to deal with the situation, others have not. There is no such thing as uniformity of action. The result has been that the people of the states are now endeavoring to reform their system of government in ways that will give the national government more power to legislate in matters of this character.

In the past, when Canadian fruit growers were free to use any style of fruit box they desired, chaos was the final result. The establishment of a government standard box was strongly opposed at first, but has proved a great blessing to the fruit industry. In western Canada, already, several kinds of open crates are in use and much confusion has resulted. It may be necessary for Ontario fruit growers to make some of the old mistakes over again, but inevitably the time will come when they will ask for greater uniformity in the construction and size of this package, just as they are now seeking to establish better standards in the matter of berry packages. The fact that the Economy crate is likely to be in considerable demand this season indicates that the time may be near when government action for its standardization will not only not be opposed but urged. The excellent article by Mr. Slack in this issue shows that the pressure of conditions is fast advancing the movement for the standardization of several different kinds of packages.

Street Boulevards

It was our privilege during July and the first part of August to visit practically all the leading cities of the prairie provinces. The climatic conditions in the west are such that many of the trees and varieties of flowers that give such a charm to eastern towns and cities do not thrive on the prairies. One of the first things an easterner notices, therefore, when in the west is the bareness of the landscape and the absence of many of the familiar flowers so common in Ontario gardens.

In other ways a number of the western cities put the east to shame. Profiting by the mistakes we have made they have laid out their streets and boulevards on a more generous scale. Municipal regulations often require that the boulevards shall be maintained in good condition. In some cases the work is attended to by the municipality and charged against the lot owner. The result is that visitors are frequently most favorably impressed by the fine appearance of residential streets with their spacious lawns, avenues of native trees or shrubs and trim, well-kept boulevards.

In the east when a man improves his residence by planting a garden and setting out window boxes and hanging baskets, he is in danger of having his taxes increased. The Guelph Horticultural Society not long since made a public protest against this condition. Western property owners are not so afflicted, as almost all the cities exempt improvements from taxation and tax land values only. The fear that such a system of taxation would lead householders to forego their lawns and gardens to save taxes has been proved to have been groundless. The saving in the taxes on improvements more than offsets the tax on the land occupied by the average lawn or garden. The immediate result, also, of any attempt of property owners to crowd together is to increase the value of their land and thus their tax bills, so automatically they are rather encouraged to spread out and live where land is not too expensive. Most cities in the west, because of the optimism that has been a characteristic of their growth, occupy too much rather than too little land. Certain it is that we in the east have much we can learn from the west in the matter of civic beautification.

Climatic conditions this season in Ontario have been such that there is going to be more than the usual percentage of low grade fruit to market this fall. Provision should be made to meet this condition. One of the saddest sights of our much boasted modern civilization is to see people in our city slums and even our industrious working classes anxious but unable to secure the fruit that often is a drug on the hands of the fruit grower. Home canning outfits are inexpensive and often provide a means of marketing much fruit that otherwise would be wasted. Fruit growers who have not done so might well consider the advisability of investing in one of these outfits this season. The evaporation of apples is not difficult. Many growers might save a considerable percentage of their crop by evaporating some of their poorer grades of apples.

Fruit growers as a class have been insistent in demanding fair treatment from the railways. Nevertheless they desire to see the railways do well. While it is generally realized that parts of the country have more railway lines than are required this is not sufficient to explain the necessity that ap-

pears to exist that the Dominion Government shall hand out millions of dollars annually to railroad corporations. What most people would like to know is were these railways constructed as economically as they might have been and to what extent have their stocks been watered. Light on these two points would aid us in reaching intelligent conclusions as to what our attitude to the railways should be. The commission appointed by the Dominion Government to investigate railway conditions in Canada should probe these matters to the bottom. The commission should not be composed entirely of railway experts. The public should be represented on it. The government, if it is not yet too late, would do well to note this point.

CIVIC IMPROVEMENT

Planting Trees in the Town?

A recent bulletin from the Colorado Agricultural College says that every thriving, growing town with any prospects for the future should be wide awake on the matter of street tree planting. Mistakes made now will exceedingly embarrass the town in the future; it is important that these matters be started right.

A scheme for planting should be prepared in advance and adhered to. Without a well thought out plan for street planting, the town has little more chance of doing a pleasing job than the man who starts building a house without any kind of an architectural plan.

The species to plant on a street, whether in single or double rows, the alignment, and the spacing, are among the subjects to be decided upon in advance. Such matters have been given little attention in the past, but with increasing wealth and a keener sense of the artistic, street tree planting is not being left to the individual property owners in the best governed municipalities. In order to effect uniformity in developing the plans, street tree planting and care is best administered by the municipal authorities.

A Civic Alphabet

A.—Abandon the care of your back yard and you pave the way for typhoid fever.
B.—Better observe "Clean-up Day" this year than have cause for regret hereafter.
C.—Civic Improvement calls for the best effort of humanity.
D.—Do your work well and disregard the critic.
E.—Educate persons not to throw paper or trash on the street, but to place it in receptacles.
F.—Fire prevention saves life and property.
G.—Good roads will add materially to the prosperity of your town.
H.—Hearty cooperation of citizens and club members in work undertaken will effect wonderful results.
I.—Improve school rooms and grounds so they will be attractive to both children and citizens.
J.—Join Civic Improvement Clubs. You are needed.
K.—Knock on the unsightly bill board and continue to knock.
L.—Lead a crusade for the city beautiful.
M.—Make your club a factor in your town life.
N.—Never say quit when it is a question of health and beauty for your home town.
O.—On with beauty, cleanliness, and health.
P.—Push, pull, and perseverance will make your town a model.
Q.—Quit criticising and begin working.
R.—Request the city authorities to enforce the sanitary laws.
S.—See that your premises are above criticism.
T.—The Tin Can Districts become germ breeders; banish them from your town.
U.—Use every effort to have all eatables that are exposed for sale screened.
V.—Vines and roses will beautify your premises.
W.—Wage war on flies, mosquitoes, and weeds, for they carry and cause disease.
X.—Xpect help from every person in the efforts to make the town sanitary.
Y.—You are responsible for the appearance of one part of your town. Don't forget that.
Z.—Zeal exhibited at the annual clean-up day will put your town in a sanitary condition.

SOCIETY NOTES

Death of Mr. Cavers

The officers and members of the Ontario Horticultural Association, and also of the Canadian Horticultural Association, will hear with deep regret of the death of Mr. John Cavers, of Oakville. For years Mr. Cavers has been a regular attendant at the annual conventions of both associations. For several years he was the chairman of the Nomenclature Committee and of the Names and Varieties Committee that did good work in connection with both organizations. During the past two years he was an active member of the Plant Registry Committee which has succeeded in inducing the Commissioners of the Queen Victoria Park, Niagara Falls, to establish a trial grounds for plants. Mr. Cavers attended the annual convention of the Canadian Horticultural Association held in Berlin, Ont., August 8-10, where he took an active part in the discussions on the report of the Plant Registry Committee. His death occurred suddenly two days later. After retiring from the banking business some years ago, Mr. Cavers established the Oakville Gardens, at Oakville, Ont., and through his advertisements in The Canadian Horticulturist and other publications became well known to the public in this capacity. His loss is deplored by all who were acquainted with him and who appreciated his upright character and high sense of public duty.

Canadian Horticultural Ass'n.

The annual convention of the Canadian Horticultural Association was held at Berlin, Ont., August 8-10, and was well attended. Mr. Jas. Fraser, of Prescott, was elected President; E. J. Hayward, Montreal, 1st Vice-Pres.; F. Dicks, London, Ont., 2nd Vice-Pres.; Julius Luck, Montreal, Sec.-Treas. The next convention will be held in Montreal. This association is composed of commercial florists and gardeners. Several interesting papers and discussions relating to commercial floriculture were features of the convention.

Peterboro

A successful lawn and garden competition was conducted this season by the Peterboro Horticultural Society. The classes included one for lawns cared for entirely by the owner; one for lawns and flowers, the owner's work entirely; one for back gardens, and one for premises cared for by professional help. The judge, F. W. Adams, of Toronto, reported that he was agreeably surprised at the extent to which home beautification had been carried out by the citizens.

Haileybury

The excellent work of the Haileybury Horticultural Society has been continued this year with distinct success. A meeting of the society was attended recently by Mrs. R. B. Potts, secretary of the Hamilton Society, at the request of Mr. J. Lockie Wilson, Superintendent of Horticultural Societies. Although Haileybury is on the north of the height of land, Mrs. Potts was shown splendid ripe tomatoes and exceptionally fine specimens of crimson ramblers and clematis. Numerous other varieties of flowers were noted to be growing to excellent advantage.

The holding of flower shows by horticultural societies has been found an excellent method of arousing public interest. An exhibit by the Hamilton society is here shown.

Precooled Express Shipments of Strawberries

J. M. Creelman, B.S.A., Grimsby, Ont.

FOLLOWING up the experiment carried on in 1915 in conjunction with the Grimsby Cold Storage, the Vineland Co-operative Growers shipped another carload of strawberries to Winnipeg by refrigerated express on July 1st of this year. The shipment was made in the full pint Hallock crate of the west, and an effort was made to see that the berries were of the proper degree of ripeness.

The car was precooled at Grimsby and shipment made by refrigerated express, and re-iced only once in transit, at Fort William, where 1,500 lbs. was needed. The car arrived at noon of the second and was opened immediately and some of the fruit disposed of. Inspection was made of a number of cases. These were found to be in fairly good shape, though softening badly. There was not much mould showing yet, except in certain packs which were noticeably worse than others.

On the following day they were not in very good shape and considerable mould was in evidence.

A number of observations were made and conclusions arrived at from the behavior of this car.

The package was entirely satisfactory, and even with the rebate granted, the berries sold at a good fair price. They realized enough to encourage future shipments.

The great difference in the condition of different packs showed that much depends on the care taken in packing and picking, so as to exclude overripe and bruised berries. There were packs which were in good shape and which were entirely satisfactory. These came from patches where care had been taken. The berries from other patches where the pickers had not been so scrupulous, and where trouble was expected, were in a poor and unsatisfactory condition.

The variety of the berries shipped was the Williams. This variety has been reputed to be a good shipper and otherwise has been highly recommended. It has a characteristic light green tip which is very slow to color and which it is found does not color under storage or transit conditions, but rather turns to an unattractive dirty brown. In our storage tests it was found to turn dark in color and become unattractive in appearance. Instead of being a good storer it was found to be one of the poorest tested.

Included in the car were 37 cases of berries which were packed and faced by special packers from the Cold Storage. This was done to approximate as nearly as possible the commercial packs of the west. Care was taken to see that no over-ripe berries went in. This pack arrived in excellent shape and held up well. It justified the extra care taken with it, except that the facing did not seem to make any appreciable difference as far as the selling was concerned.

The general conclusions reached in regard to the shipment of berries to Winnipeg were that first of all great care must be taken to see that the condition of the fruit is right and that no overripe berries are included. It is apparently not worth while facing our packs.

It is doubtful if very successful shipments can be made with the Williams variety. It is possible that before these shipments become any extensive feature of the berry-growing industry of the Niagara Peninsula, that some other variety will have to replace the Williams as the chief commercial berry. This should not be an impossibility, as there are already berries which are better than the Williams as a shipper and which are as good in other respects.

Taken altogether the experiment was thoroughly encouraging. With care in handling Ontario berries should be able to largely shut out Hood River and other United States berries from the Winnipeg market and still yield remunerative prices to the Ontario shipper. We look forward to the time when Ontario strawberries will be supplying Winnipeg and nearby markets.

Standardization of Fruit Packages

(Continued from page 215.)

possibly have found it a hardship, which is a strong argument for standardization, as all shippers would then be on an equal basis regarding packages. Objections, I believe, have been raised to the use of the shallow pint for raspberries. It is claimed that the berries will not carry well in that package. My own observations are to the contrary. I have seen British Columbia raspberries in Regina packed in the local two-fifth crate, the hallocks of which were 1 inches in depth. These berries were in good condition when I examined them. The point, however, is that standardization will obviously be to our advantage.

Our four-basket crate pack often has been criticized. The chief complaint has been that the pack was not so heavy as the imported one. In a number of cases this criticism was justified. Unfortunately some very slack packs, plum packs particularly, have reached the markets. Slack packing can, of course, and should, be remedied, but possibly we have overlooked the fact that most of our competitors tin-tops are larger than our own, measuring 7¾ in. at the top, 6½ in. at the bottom and having a vertical depth of 3¾ in. compared with 7½ in. x 7½ in. at top, 6½ in. x 6½ in. at bottom, with a vertical depth of 3¾ in. in the tin-top used in British Columbia. We also find a tin-top from Washington measuring 8 in. x 8 in. at top, 6½ in. x 6½ in. at bottom, with a vertical depth of 3½ in. This acts to our disadvantage, and very few people in the trade even know that our four-basket crate is smaller than the Washington one. The Washington crate often sells in preference, being usually a heavier pack. The situation warrants our consideration in having only one sized four-basket crate.

The Apple Crate.

With the introduction of a crate package for apples, we find that different shippers have various ideas as to what constitutes the best package for that purpose. The result last season was that five different packages were in evidence on our prairie markets, including imported ones. Difficulties and confusion resulted to the trade from this condition. All of the packages used were suitable for the purpose and it does not appear to me that it would be a difficult matter to get together and select an apple crate with a view to having it standardized.

It probably will not be disputed that sales f.o.b. shipping point are usually to the advantage of growers and should be encouraged. In dealing with standardization it is perhaps not necessary to enlarge on the disastrous results that a consigned market has on the producer. Many of the circumstances that have forced our shippers to consign are outside of their control. Standardization will not overcome this difficulty, but it will be a factor in encouraging f.o.b. sales. For this reason alone, it is worthy of our attention.

There have been cases where wholesalers have refrained from making any offer for a car, preferring to accept it, on consignment in order to examine it and ascertain the style of packages. I am confident that the trade would have more confidence in buying f.o.b. shipping point if our packages were standarized. Where there is more than one sized package in use for the same purpose, it enables the shipper using the smaller package to undersell the shipper using the larger package. Price cutting at shipping point has a very disastrous effect and is more far-reaching than one at first realizes. Generally speaking, the wholesale trade does not object to the price they pay for their fruit, provided they are reasonably assured that their competitors have to pay the same. The point that usually induces a wholesaler to object to a price is that he can obtain the same article at a lower figure from a different source. He is afraid that his competitor may buy cheaper and therefore may refrain from closing a deal. This, if repeated often, might result in forcing shippers to consign.

Price Cutting.

Price cutting at the shipping point usually immediately results in price cutting at distributing centres. There probably is nothing that is so disastrous to the growers as this condition. It is apt to develop a consigned market, as the wholesaler would be dubious about buying while the market was so unsettled. Standardization would assist in alleviating this situation and thus be advantageous to the producer.

When considering the standardization of packages there are several points to take into account before deciding which are the best packages to adopt. We must consider the manufacture and cost, shipper, packer and consumer.

The manufacturer's viewpoint is an important one as it affects the cost. The manufacturers assure us that standardization will be a great assistance in enabling them to produce cheaper and to fill orders promptly. In deciding on our packages we should endeavor to have as many as possible the same length and width. It is obvious that a number of advantages would arise from this. The mills could work more economically, mixed cars could be loaded with greater ease and shook could be warehoused with less trouble, the same covers and cleats doing for possibly several packages. The sizes of our boxes and crates are, of course, largely governed by their adaptability to carry the fruit in safety, but as there are different packages in which our fruit carries well, some diversity of opinion is almost bound to exist as to which is the best. It is at this point that we should consider the issues with a broad mind and not permit our various ideas to prevent our accomplishing something definite.

The consumer's viewpoint comes last, but it is by no means least. With standardization, he is protected, for no matter where he buys a package of fruit, he is assured of a standard size. For this reason I do not think that he enters largely into our con-

sideration when settling standards for packages, other than to see that our packages do not impress him that he is being treated unfairly.

To have packages to accommodate our various fruits, it would be advisable to select an apple box and crate, pear box, peach box, lug box, four basket crate, berry crate and canteloupe crate. These packages, I believe, would be ample for all purposes.

Apple Boxes.

The apple box has frequently been discussed and no decision has ever been reached in regard to it. We have for domestic purposes two sizes to select from, both of which are in use in British Columbia. One is the box specified for export in the Inspection and Sales Act, Section 325, which has inside dimensions of 10 x 11 x 20 inches, containing 2,200 cubic inches, while the other is the Oregon box, with inside dimensions of 10½ x 11½ x 18 inches, cubic contents being 2,173½ cubic inches. As far as the adaptability of these packages for apples is concerned I do not believe there is very much difference. If anything, the Oregon box has the advantage. The chief argument in favor of the Oregon box, to my idea, is that the length is identical with the pear and peach box. This is a very important point, as it enables the mills to produce cheaper by utilizing material for other packages that otherwise would be wasted. It is certainly an advantage in warehousing shook and loading mixed cars. It would also be of convenience to the trade in warehousing at distributing points.

Some objections may be raised due to the fact that our Australian markets require a different package. It is unfortunate that such is the case, but, nevertheless, I am of the opinion that it will be to our advantage to adopt the Oregon box for domestic purposes.

Apple Crates.

In regard to apple crates it is obvious that some steps should be taken in order to have only one size in use. Undoubtedly several ideas exist as to what constitutes the best package for this purpose. I would suggest for your consideration that the apple crate should be of the same dimensions as the apple box, if for no other reason than to endeavor to have as many of our packages as possible of a uniform length.

In regard to the peach box, we have one in use in British Columbia measuring 11 x 18 inches inside, and another measuring 11½ x 18 inches. I think we should agree as to which of these two packages to adopt. It will, of course, be necessary to have several different depths, and I would suggest 3½, 4 and 4½ inches. In regard to the width, 11½ inches would be the same as the apple and pear box suggested, with the accompanying advantages.

Pear Boxes.

Regarding the pear box, I would suggest the one measuring 11½ inches wide, 8½ inches deep and 18 inches in length inside. This would give us a package of the same length and width as the apple and peach box suggested. In view of the fact that a lug package is now being used for some markets, it would, I consider, be desirable to standardize one. Various packages have been used for this purpose, but the results of my observations would favor the Pacific lug, as used by the Pacific Fruit & Produce Co. This package is used largely for cherries and is shipped containing 25 lbs. net by weight. It measures 14 inches in width, 5½ inches deep and 16¾ inches in length, having a hand gouge on each end, with a cleat 14 x 1½ x ½ inches under the cover, which permits a free circulation of air.

In considering the deep pint hallock, the packer, I believe, should receive the first consideration in determining the specifications. It seems to me that the hallock, measuring 4⅜ x 4⅜ x 1¾ inches would be a trifle shallow to accommodate two layers of large berries, and the size used in Hood River, Kennewick, etc., 4¼ x 4¼ x 1⅞ inches might be more suitable.

In regard to the four basket crate, I am of the opinion that the tin top should be standardized. The one in general use in British Columbia measures 7½ x 7½ inches at top, 6½ x 6½ inches at bottom, and 3¾ inches in depth. Some are being made 7½ x 7½ inches at top, 6½ x 6½ inches at bottom, and 3⅞ inches deep. This basket is accommodated in a crate 4¼ inches deep, which is one-quarter inch deeper than the one in general use in British Columbia. Washington has at least two sizes in use, one measuring 8 x 8 inches at top, 6½ x 6½ inches at bottom, and 3½ inches in depth, while the other, which to my idea is to be commended, measures 7¾ x 7¾ inches at top, 6½ x 6½ inches at bottom, and 3¾ inches deep. This package, I believe, will assist us in overcoming the slack plum pack often in evidence from British Columbia.

The canteloupe crate needs attention. The package that is apparently best suited for this purpose is 12 inches in width, 11 inches deep, and 22¼ inches in length, inside measurement.

Assuming that our packages have been standardized, there are other matters regarding packages that require our attention. Some markets require fruit in different packages to others. In this connection I have interviewed the wholesale trade of the prairie provinces during the past season

Douglas Gardens
OAKVILLE, ONT.

HERBACEOUS PERENNIALS.

Achillea—The Pearl, each	15c
Anthemis—Tinctoria Kelwayi	15c
Aquilegia—(Columbine), very fine	15c
Arabis Alpina (Rock Cress)	15c
Boltonia Asteroides	15c
Campanula (Bellflower)	20c
Chrysanthemum Uliginosum (Giant Daisy)	15c
Coreopsis Grandiflora	15c
Delphinium, Gold Medal Hybrids	20c
Dianthus Barbatus (Sweet William)	15c
Dianthus Plumarins, "Mrs. Sinkins"	15c
Dicentra Spectabilis (Bleeding Heart)	20c
Gaillardia (Blanket Flower)	15c
Gypsophila (Baby's Breath), single and double	15c-20c
Helenium, 5 vars.	15c-20c
Hemerocallis, 5 vars.	15c-20c
Heuchera (Alum Root) (Coral Bells), 4 vars.	20c
Iris, 30 vars. and species	10c-75c
Lychnis, Chalcedonica	15c
Paeonies, single and double, 66 vars.	35c-$5.00
Pentstemon, 2 species	20c
Phlox, Miss Lingard	20c
Physostegia, 2 vars.	15c
Spiraea and Astilbe, 6 vars.	15c-35c
Valeriana Officinalis (Hardy Garden Heliotrope)	15c

Plants at 15c each are 10 for $1.25.
Plants at 20c each are 10 for $1.50.

Postage, as per published schedule, is to be added to remittance.

John Caver's Estate

CHOICE APPLE BARRELS

The Best is the Cheapest

We supply the best Associations in Canada with stock or Barrels.

Prompt shipment ---reasonable prices.

The Sutherland-Innes Co., Limited
Chatham, Ontario

GRAY CAUCASIANS
Early breeders, great honey gatherers, cap beautifully white, great comb builders, very prolific, gentle, hardy, good winterers.
Untested, $1.00; Select untested, $1.25.
Tested, $1.50; Select tested, $2.00.
H. W. FULMER
ANDALUSIA [illegible] Pa., U.S.A
"The best all purpose bee."

MILLER'S STRAIN ITALIAN QUEENS
still on the map with a few choice untested queens at 75c each, 6 for $4.00. Select untested, each, $1.00, 6 for $5.00, for balance of the season.
I. F. MILLER
1214 Ozan St., - - Pittsburg, Pa.
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DOOLITTLE & CLARKE'S
Untested Queens at $1.00 each;
$5.00 for 6; $9.00 per doz.
MARIETTA, N.Y. - U.S.A.

BEES FOR SALE
Italian Bees, lb., $2.25; 5 lbs., $10.50; 1-L Frame, $2.00; 2 Fr. Nuc., $3.00; All with Queens. Italian Queens, 75c each; 6 for $4.00. Complete Catalogue Free. Listing Beginner's Outfit.
THE DEROY TAYLOR CO.
Box C., - - NEWARK, N.Y., US.A.

NORTHERN BRED ITALIAN QUEENS
Friends, have you E. F. Brood? If so, I have many letters saying that they are great resisters of E.F.B. I have hundreds of queens in Canada. Three band strain bred to right brightness to resist best. Untested queens 75c, choice Sel. Tested $1.50. Plans how to "Introduce Queen and Increase," 25c. List Free. E. E. MOTT, Glenwood, Mich.

BARRELS TINS, GLASSWARE
Comb Honey Cartons and Cases
THE FAMOUS ROOT SUPPLIES
The Root Canadian House
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TRADE MARK
Wilkinson Climax B
REGISTERED
Ensilage and Straw Cutter
Our "B" machine, built especially for the farmer. A combination machine—it will cut and deliver green corn into the highest silo or dry straw or hay into the mow. 12-inch throat, rolls raise 6 inches and set close to knives—solid, compact cutting surface. Can change cut without stopping. Can be reversed instantly. Direct pneumatic delivery. Knife wheel carries fans. No lodging, everything cut, wheel always in balance. Steel fan case.
Made in two styles—mounted or unmounted. We also make larger type machine for custom work.
Ask your dealer about this well-known machine and write us for new catalog showing all styles.
THE BATEMAN-WILKINSON CO., LIMITED
468 Campbell Ave.
Toronto, Canada

and have prepared a list of each distributing centre with the packages for the various kinds of fruits preferred, and I believe it would be to your advantage to study the markets and endeavor, as far as possible, to meet their requirements in this connection.

Regarding sweet cherries, Winnipeg requires them packed in the 24 deep pint crate, Brandon in the four basket crate and 24 deep pint crate. Regina has a limited demand for the 24 pint, moving the bulk of the cherries in the four basket crate. Moose Jaw favors the 24 pint with some lugs. Lethbridge, Medicine Hat, Calgary and Edmonton desire the lug. Lethbridge, in addition, can handle to advantage the four basket. Saskatoon prefers the 24 pint crate. Generally speaking, the ten pound flat is a dead issue as soon as the heavy cherry movement is on, and, as our competitors' cherries are on the market before ours there is not much demand for the flats by the time our cherries arrive.

In regard to sour cherries, Winnipeg and Brandon prefer the six quart basket. Regina can handle both in the six qt. and four basket crate, Moose Jaw, Lethbridge, Medicine Hat, Calgary and Edmonton prefer the four basket crate, while Saskatoon can use the four basket, but prefers six qts.

All our centres prefer the 24 deep pint for strawberries and the 24 shallow for raspberries. The 24 pint crate is also preferred for all berries and currants.

Plums are in favor in the four basket crate, the peach box being very unpopular, while prunes are desired in the 3½ inch peach box. Apricots are required in the four baskets only. The four basket crate is proving very popular for tomatoes. Brandon and Moose Jaw are the only points that have spoken at all favorably of the peach box.

As I have stated before, I believe that by giving our markets consideration along the lines suggested, by endeavoring as much as possible to supply them with fruit packed in the packages they prefer, we will assist in increasing the demand for our produce. Your competitors study this matter, and have, on various occasions, obtained an advantage over you by this method. It appears to me, particularly at this time when competition is so keen, and with your rapidly increasing tonnage, which necessitates you securing every available outlet, that these matters merit your consideration.

Mr. Palmer, the New Director

The Ontario Government announces that Mr. E. F. Palmer, B.S.A., has been appointed to succeed Mr. F. M. Clement as director of the Horticultural Experiment Station at Vineland, Ont., in the Niagara District. Mr. Palmer will assume his new duties early in September.

The new appointee is a comparatively young man who has become best known to the fruit growers of Ontario during the past three years while holding the position of assistant director of the Fruit Branch of the Ontario Department of Agriculture. He is a graduate of the Ontario Agricultural College, where he specialized in horticulture. His early practical training in fruit growing and marketing was obtained under his father, R. M. Palmer, one of the well known fruit growers of British Columbia. For the past seven years Mr. Palmer has been working in Ontario, and therefore, is conversant with orchard conditions in the province. His three years with the fruit branch has helped to prepare him for the administrative part of the work which is very important in an experiment station having the standing of

SMALL FRUITS
Raspberries, Gooseberries, Red Currants, Black Currants, Strawberries, Rhubarb Roots, etc., etc.
WM. FLEMING
NURSERYMAN
Owen Sound, Ontario

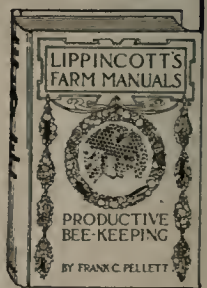
QUEENS OF QUALITY
The genuine "QUALITY" kind of dark Italians. Unt., 75c each, $8.00 per doz. Circular free.
J. I. BANKS, DOWELLTOWN, TENN.

Requeen Now for 1917
QUEENS FIRST QUALITY
August and September—each 65c., dozen lots $7.20
THE ROOT CANADIAN HOUSE
183 Wright Ave., Toronto

CARNIOLAN GOLDEN
and Three Banded Italians.
Untested—1, 85c; 6, $4.80.
Tested—1, $1.25; 6, $7.20.
Bees—$1.25 per lb.
Breeding Queens—$4.00.
Nuclei, without queen—1 fr., $1.75; 2 fr., $2.75; 3 fr., $3.50.
D. L. DUTCHER - - Bennington, Mich.

Northern Bred Italian Queens
of the E. E Mott strain. Untested, 90c; Guaranteed, $1.00 for June. July, unt., 75c; Guaranteed, 90c. Send for list. Safe delivery and satisfaction guaranteed.
EARL W. MOTT - Glenwood, Mich

Queens
Reared in Canada from the very best Italian stock. Untested, $1.00 each, six for $5.00. Select Tested, 1.50 each.
Prompt delivery.
P. Temple
438 Gladstone Ave. Toronto, Ont.

BEES
Bees are a money making asset on any farm, bringing annually a far greater return to your table and at the market than they cost in care and expense. Do you know the twentieth century methods? Buy PRODUCTIVE BEE-KEEPING, learn how to make a beginning and how to see it through. It gives the methods found to be the best money-makers by extensive honey producers. The illustrations give in pictorial form all that is needed to explain the text.


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The Horticultural Publishing Co.
Peterboro, Ont.

that at Vineland. With Mr. Clement, Mr. Palmer has been responsible for the preparation of the splendid series of bulletins issued on various fruits by the Ontario Department.

Mr. A. G. Harris, Pomologist of the Station, has resigned his position to take up the management of a large fruit plantation in Colorado. This summer Mr. Harris has devoted his entire time to the new advertising scheme of the Niagara District Publicity Association and has been very successful in his canvass of the fruit growers. The Association label is being largely used and far better results have been obtained this year than under the 1915 scheme. Considerable credit is due to Mr. Harris for his part in the work.

Mr. F. M. Clement, who has held the position of Director of the Station since 1913, resigned to accept the position of Professor of Horticulture in the University of British Columbia. He will leave for the west in September. In the two years that Mr. Clement has spent at Vineland he has gained the respect of all classes of growers and has gathered around him a staff of capable men. Experimental work of great value has been carried out under his supervision, and with the coming into bearing of the thousands of young trees planted since 1908, the director has been able to compile an extensive report of the work which will soon be ready for distribution. Mr. Clement leaves for his new position with the best wishes of the many friends that he has made in the Niagara District and elsewhere.

Washington Grading Rules

General rules and regulations governing the packing of apples and establishing and refining the grades thereof, as adopted by the Commissioner of Agriculture for the State of Washington, are here given:

"First Grade," "Grade No. 1," or Extra Fancy" are defined as sound, smooth, mature, clean, hand-picked, well-formed apples only, free from all insect pests, diseases, blemishes, bruises, and other physical injuries, scald, scab, dry or bitter rot, worms, worm stings, worm holes, spray burn, limb rub, visible water core, skin puncture or skin broken at stem.

"Second Grade," "Grade No. 2," "Fancy" apples are defined as apples complying with the standard of first grade apples, except that slight leaf rub, scratches or russeting shall be permitted up to a total of one-inch in diameter; and limb rubs will be permitted showing an aggregate area in the various counts of one-half of that allowed for leaf rubs, providing that no apple shall show total blemishes aggregating more than one inch in diameter in counts running 125 to the box or less; more than three-fourths inch in diameter in counts running 138 to 163 to the box, and one-half inch in diameter in counts running 175 or more to the box. No clearly misshapen or bruised apple, or apples bearing evidence of rough handling shall be permitted in this grade.

"Third Grade," "Grade No. 3," or "C" grade apples shall consist of mature apples free from all insect pests, worms, worm holes, infectious diseases, skin punctures, bruises or broken skin—but slightly misshapen apples, or those having sun scald, and the blemishes allowed for second grade apples shall be permitted, and there shall be no requirement as to color.

"Combination Extra Fancy and Fancy" grade. When first and second grade apples are packed together, the packages must be marked "Combination Extra Fancy and Fancy."

Combination grade may also include all

Bees Wax Wanted

We will pay the highest market price for good grades of beeswax—cash or in exchange for supplies.

THE TILLSON COMPANY
LIMITED
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Queens of MOORE'S STRAIN of Italians
PRODUCE WORKERS
That fill the super quick
With honey nice and thick.
They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.
Untested queens, $1.00; six, $5.00; 12, $9.00. Select untested, $1.25; six, $6.00; 12, $11.00.
Safe arrival and satisfaction guaranteed.
Am now filling orders by return mail
J. P. MOORE
Queen-breeder. Route 1, MORGAN, KY.

FOR SALE
Leather colored Italian Queens, choice breeding queens at $5.00 each. I guarantee these Queens to be as good as any imported Queen, barring none. Money refunded if dissatisfied after a year's trial. Warranted purely mated Queens, $1.00 each, $10.00 a dozen. Untested, by return mail, at 75c each, or $9.00 a dozen. Tested Queens, $1.50 each.
JOHN A. McKINNON
St. Eugene - - Ontario

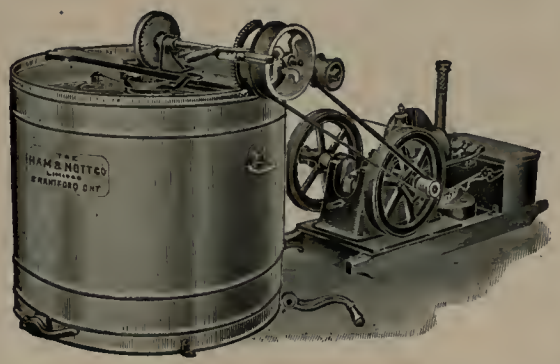
Three Banded and Golden Italian Queens
Untested—$1.00 each; 6 for $5.00; 12 for $9.00.
Selected untested—1 for $1.25; 6 for $7.00; 12 for $14.00.
W. R. STIRLING
Queen Breeder. RIDGETOWN, ONT
Send for Price List. Cash with Order.

Q-U-E-E-N-S
Three-band Italians. Untested for 50c. each. The same as you pay $1.00 for, and just like the ones you get for $1.50. Guaranteed to be as good as money can buy. Every one fully guaranteed to give perfect satisfaction. Safe delivery. Write for prices on 25 and more.
N. Forehand
FT. DEPOSIT - ALABAMA

QUEENS AT 50c.
These queens are guaranteed to be as good as money can buy. They are bred by the same methods and with the same care as the high price ones. They are bred from imported mothers, the best in the world, and will produce bees that is the best for honey gathering, for gentleness, and are not inclined to swarm.

	1	6	12	25	50	100
Untested.....	.50	3.00	6.00	11.75	22.50	43.75
Select Untested....	.65	3.50	6.75	12.50		
Tested	1.00	5.50	10.00			
Select Tested.....	1.50	8.50	16.00			

We guarantee that all queens will reach you in good condition, to be purely mated and to give perfect satisfaction.
All orders filled at once.
L. L. FOREHAND - Ft. Deposit, Ala



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As the name of this book indicates it is especially adapted to the needs of the practical beekeeper. Not a discussion of scientific principles, but of practical methods.
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Hyacinths, all colors, per doz. 40c., 55c., 65c., and $1.00. If required by mail add 20c. per doz.

Single and Double Tulips, all colors, per doz. 15c., 20c., 25c., and 40c. If required by mail add 15c. per doz.

Narcissus and Daffodils, all shades, per doz. 25c., 40c., and 60c. If required by mail add 15c. to 20c. per doz.

Our Autumn Bulb Catalogue contains a list of bulbs suitable for all purposes, and will be mailed on request.

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190 McGill St., Montreal, Que. 394 Portage Ave., Winnipeg, Man. 1138 Homer St., Vancouver, B.C.

FRUIT MACHINERY CO.

INGERSOLL, ONT.

Manufacturers of the Ontario Power Sprayer Model 2-B, the handiest of them all. Engine fills the tank. Also a complete line of Apple Evaporating Machinery and power evaporator equipment. Our complete power systems for evaporating as we install them are practical, sanitary and labor saving.

Write for free illustrated catalogue on spraying and evaporating.

Cold Storage Fruit Warehouse

Finest Apple Rooms in the Dominion for Export and Local Trade.

Special Rooms for all Kinds of Perishable Goods.

The Canada Cold Storage Co.
Limited,
53 William St., MONTREAL, QUE.

Big Ben

For the Cream of the Day

TWO A. M.—inky dark—that's when Big Ben starts the milkman's day.

Out of bed like a boy going fishing—nudges Big Ben to a hush—takes up the tune as he whistles to work.

You've heard that patter of nimble feet—the clink of bottles in the wire tray—the rattle of boxes, of cans and ice—the giddap—the wheels—the merry tune—all unmindful of the world at sleep. You've wondered.

Try Big Ben *yourself* a little earlier. See how he'll bring *you* the cream of the day—rich morning hours that start you right and stretch out till night with minutes aplenty for every task. And *you'll* take up his tune and smile through the day.

Big Ben is six times factory tested. At your dealer's, $2.50 in the States, $3.00 in Canada. Sent prepaid on receipt of price if your dealer doesn't stock him.

Westclox folk build more than three million alarms a year—and build them well. All wheels are assembled by a special process—patented, of course. Result—accuracy, less friction, long life.

La Salle, Ill., U. S. A. Western Clock Co. Makers of *Westclox*

Other Westclox: Pocket Ben, Baby Ben, America, Bingo, Sleep-Meter, Lookout, Ironclad.

other apple varieties not provided for in first and second grades.

When second and third grade apples are packed together, the packages must be marked "Combination Second and Third Grade."

When first, second and third grade apples are packed together, the packages must be marked "Orchard Run," but Orchard Run packages must not contain any apples that would not meet the requirements of third grade.

Summer and Early Fall Varieties: Summer varieties, such as Astrachan, Bailey's Sweet, Bietightimer, Duchess, Early Harvest, Red June, Strawberry, Twenty Ounce Pippin, Yellow Transparent and kindred varieties not otherwise specified in these grading rules, together with early fall varieties such as Alexander, Blue Pearmin, Wolf River, Spokane Beauty, Fall Pippin, Waxon, Tolman Sweet, Sweet Bough, and other varieties not provided for in these grading rules, as grown in sections of early maturity, shall be packed in accordance with the grading rules covering fancy grade, as to defects, but regardless of color rules.

The "Economy" Crate

Last year the "Economy Crate" was used for the first time by Ontario apple shippers. It proved a considerable factor in the trade with Western Canada. This year it is likely to be used even more extensively.

Letters received recently by The Canadian Horticulturist from fruit commission houses in Western Canada show that there is a considerable difference of opinion among Western dealers in regard to the merits of this crate. The following letters speak for themselves:

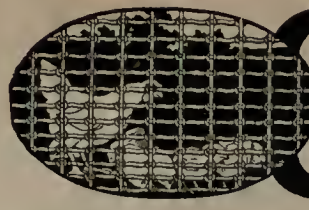
Rogers Fruit Co., Ltd., Winnipeg: "We are not at all in favor of the 'economy apple crate,' as the shippers put in too many culls in this style of a package. Last fall I had considerable experience with this package, and it was not in my opinion a success. The package would be all right for early fall stuff if the growers and packers were particular about what they put into the package. Personally, I am in favor of the standardization of all fruit packages used in Canada. I much prefer the box pack to any other style. It is the coming package for apples.—J. E. MacLean, Manager."

Laing Bros., Winnipeg: "We are not in favor of the Economy Apple Crate for shipping apples, as it is a very poor looking package, and apples put up in an open crate will dry out and get bruised between the slats. We believe the only proper way to pack apples is to have them put up in regular apple boxes wrapped in paper, or in barrels. They will keep much longer in a box or a barrel than in a crate. The only use we would have for an Economy Crate would be for putting up a cheap grade of apples, which would have to be sold quickly; the crate being cheaper than the ordinary apple box or apple barrel. We would not encourage the use of crates for shipping apples."

The Scott Fruit Co., Winnipeg: "We handled a few cars of Economy Crates of apples from British Columbia last season, which turned out fairly well. Apples do not keep as well in this crate as in the regular apple crate. But for quick sale of the fall apples they seem to be all right. Personally, we do not think that any apples lower than two grade should be packed at all. We would not handle them under any consideration.—D. S. Manson, Mgr."

Diseases of Potatoes

A timely bulletin issued by the Division of Botany, Central Experimental Farm, Ottawa, deals with late blight and rot of potatoes. Paul A. Murphy, assistant Plant Pathologist at Charlottetown, P.E.I., is the author, and the bulletin, which is entitled Circular No. 10, can be had free on application to the Publications Branch, Department of Agriculture, Ottawa. Both the Director of the Dominion Experimental Farms and the Dominion Botanist agree that the subject is most important, as late blight has caused incalculable losses, but that those losses can be reduced to a minimum by thorough and timely spraying with Bordeaux mixture. Mr. Murphy describes the symptoms very fully. Early blight is prevalent in July, and the spots which it causes are characteristically dry, brown, and marked with a series of concentric rings. Late blight makes its appearance in August and September as a rule, although it is always present before it is generally noticed. The first spots, which are usually on the lower leaves or stems, are dark brown to purplish black in color, sometimes surrounded by a ring of light green, and they have a water-soaked appearance. In fine weather they dry up and become brown. In moist weather they increase in size and number and may involve the whole plant. An infected tuber is characterized by lurid-colored, slightly-shrunken areas on the surface that are abnormally hard. Mr. Murphy says that the losses from the diseases are incalculable, and that in the United States some time ago they were placed in value at $36,000,000 a year. In 1915 it is estimated that the loss to Prince Edward Island alone was not less than $1,000,000, representing 2,000,000 bushels. The damage all over Eastern Canada was about on the same scale. Methods of control by spraying



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Strongly made and closely spaced—making it a complete barrier against large animals as well as small poultry. Top and bottom wires No. 9—intermediates No. 12 wire—made by the Open Hearth process which time and other tests have proven to be the best. Send for catalog. Ask about our farm and ornamental fencing. Agencies nearly everywhere. Agents wanted in unassigned territory.

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Good Prices Paid

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THE oldest line of steel beam plows in the Dominion, made in the old Wilkinson Plow Co's factory, by old Wilkinson Plow Co. experts—every one of them men who know their business. It is **the standard line of plows** and includes 25 or more styles to choose from. U. S. S. Soft Center Steel Moldboards, highly tempered and **guaranteed** to clean in any soil. Steel beams, steel landsides and high carbon steel coulter. Clevises can be used either stiff or awing. Each plow is fitted especially with its own pair of handles—rock elm, long and heavy and thoroughly braced. The long body makes it a very steady running plow. Shares of all widths—specials for stony or clay land.

General purpose, light, medium, and heavy, side hill, sod, drill or one horse plows

The plow shown turns a beautiful furrow, with minimum draft and narrow furrow at finish. *Ask for new booklet.*

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Repairs for all Wilkinson Plows

For the Land's Sake

Use the best Manure
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GOOD CROPS

For Nurseries, Fruit Growers
and Gardeners.

Sure Growth Compost

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Makes poor land fertile and keeps fertile land most productive.

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Say you saw this ad. in The Canadian Horticulturist

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BOXES
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SINCE 1867

FRUIT BOXES
IN SEASON

Toronto - Canada

DARWIN TULIP BULBS

Grown by

DR. D. CLARK

GRIMSBY - ONT.

I HAVE several thousand Darwin Tulip Bulbs which I absolutely guarantee true to name and description which I will sell for spot cash at very reasonable prices.

These bulbs are not "just as good as Holland grown bulbs," they are better. They are at least better than any I ever imported. Write early for name, description, and prices.

Save Those Apples

BY USING A

MAXWELL CIDER PRESS

HOW many go to waste that might be turned into Cider or Cider Vinegar with a small investment. Maxwell Presses are well made, of the best material, heavy substantial frame, and cross section of extra weight and strength; furnished with two crates, galvanized hoops and tinned rivets. Made for either hand or power.

MAXWELLS LIMITED

St. Mary's, Ontario

are detailed and the prescription for making the Bordeaux mixture given. The stocking of solution of copper sulphate and milk of lime is advised. Poison for the Colorado beetle can be applied with the Bordeaux as often as necessary. For this, either Paris green or arsenate of lead, or a combination of both, may be used, half a pound of the former and a pound and a half of the latter to 40 gallons of spray being sufficient. In very severe cases the quantities of the poison can be increased by half.

A Guide to Apple Packers

The Dominion Fruit Division at Ottawa has issued the following information as a guide to apple packers who are warned that they should follow it very carefully and under no circumstances vary from it.

1st—If four apples of the same size fit side by side across the box, or four fit loosely and the fifth will not go in, the pack is 2-3, five layers to fill the box.

2nd—If three apples fit loosely across the box, side by side, and the fourth will not go in, the pack is 2-2. Four layers to fill the box.

3rd—If three apples fit tightly across the box side by side the pack is stralght 3. Three layers to fill the box.

4th—If two apples, side by side, fit loosely across the box and the third will not go in, the pack is 2-1. Three layers to fill the box.

TABLE OF PACKS.

2-1 Diagonal Pack.

2-1, 4-4	36	apples to the box, pack on side.
2-1, 4-6	41	" " " pack on side.
2-1, 5-5	45	" " " pack on side.

Straight 3 Pack.

3 wide, 5 long, 45 apples to the box, pack on side.
3 wide, 6 long, 54 apples to the box, pack on side.

2-2 Diagonal Pack.

2-2, 3-4	56	apples to the box, pack on end.
2-2, 4-4	64	" " " pack on end.
2-2, 4-5	72	" " " pack on end.
2-2, 5-5	80	" " " pack on end.
2-2, 5-6	88	" " " pack on end.
2-2, 6-6	96	" " " pack on side (usually).
2-2, 6-7	104	" " " pack on side.
2-2, 7-7	112	" " " pack on side.
2-2, 7-8	120	" " " pack on side.
2-2, 8-8	128	" " " pack on side.

2-3 Diagonal Pack.

2-3, 4-5	113	apples to the box, pack on end.
2-3, 5-5	125	" " " pack on end.
2-3, 5-6	138	" " " pack on end.
2-3, 6-6	150	" " " pack on end.
2-3, 6-7	163	" " " pack on end.
2-3, 7-7	175	" " " pack on side (usually).
2-3, 7-8	188	" " " pack on side.
2-3, 8-8	200	" " " pack on side.
2-3, 8-9	213	" " " pack on side.
2-3, 9-9	225	" " " pack on side.

The 128 pack is very seldom used, except possibly for flat varieties.

The 113 and 125 packs have taken the place of the old square pack.

The apples from Washington State and British Columbia are the chief competitors of the Ontario apple in western Canada Their No. 3's are as good as some of the Ontario No. 1's. It is a mistake of growers to expect to receive a high price for No. 3 apples packed in crates.—E. Maycock, Wholesale Fruit Dealer, Winnipeg.

I have derived much pleasure and benefit from the splendid articles you publish in The Canadian Horticulturist.—R. A. Fletcher, Toronto, Ont.

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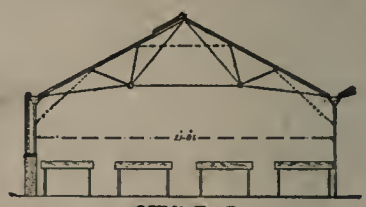

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Niagara District Notes

F. G. H. Pattison, Winona, Ont.

THE hot weather shortened the raspberry crop, which did not turn out much more than half of what it promised to be at one time. It also has affected the thimbleberry crop, both in quantity and quality. Black and red currants turned out excellent crops in spite of both heat and drought.

The berry situation has been made more serious for the growers by the impossibility of getting sufficient pickers. Around Hamilton large quantities of small fruits are grown. In former years the growers have depended largely on the women and children of the city to pick them. Year after year they have responded freely to this demand and large plantings have been made on this account. This year it has turned out quite differently. A large proportion of these women, it seems, are now comparatively well off, what with money from the patriotic fund, and other sources, and they refuse to go out and pick berries for the growers or to allow their children to go. The consequence has been that hundreds upon hundreds of crates of raspberries, and baskets of black and red currants have gone to waste for want of pickers. A good deal of ill-feeling has been caused amongst the growers by this unfortunate action on the part of these women, who emphatically have not "done their bit," even although their husbands may have. Several growers have intimated that they would give no more to the patriotic fund. One of these men said to me: "When these women, as a result of the money given them, refuse to 'do their bit,' and allow our crops to perish for want of their help, it is too much to ask us to give them either money or fruit any more." This may be taking rather too pronounced a stand, but the fact remains that this class of women by their ill-advised selfishness have caused a great loss, both to the growers

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DEPARTMENT OF FINANCE
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and to the country. It will cause the destruction of a good many berry patches, and there will naturally be fewer planted. As a result, small fruits will be dearer in the cities, and the very women who refused to help pick will be the loudest in their complaints of the high prices of small fruits. Cherries are over now. Sweet cherries were less than half a crop, but the price was excellent, especially for blacks. These sold at from $1.00 to $2.00 per basket. For some time sours ran along at from 65c to 80c per basket, but towards the latter part of the season they brought from 90c to $1.10. There has been a steady and good demand for black currants at good prices. In spite of the fact that the crop has been excellent, jam factories have been contracting at prices varying from 6c to 7½c per lb. Red currants have also sold well at 7c to 9c per quart box. Gooseberries were dull at first, but improved in price, small varieties bringing 40c to 50c, and better ones 60c to 90c per 11-qt. basket. At the present date (Aug. 21) there is a decided lull in the fruit market, berries being over—except thimbleberries—which are a short crop, and only a few early peaches, plums, and apples are coming on the market. Early peaches are selling at a wide range in price, from 40c to $1.00 per basket. Early apples are in good demand at from 25c to 60c per basket, but the sample is mostly poor. Early plums are scarce and will remain so till Bradshaws are ripe. The latter are a good crop; prices for plums run from 50c to 60c per basket.

The peach crop promises well, but if this extreme hot and dry weather continues the size of the fruit will be affected. Early peaches will be plentiful, Crawfords light, Elbertas pretty good, others very good. Growers expect that prices ought to be better for peaches this year and figure that good peaches ought to net from 40c to 50c per 11-quart basket up to the end of the Elberta season. After that a drop is not unlikely, as late peaches are a heavy crop.

The price of plums ought to be pretty fair, as they are only a moderate crop, but the high price of sugar works against them, although during the last two weeks there have been two slight reductions in the wholesale price of sugar.

It is more and more apparent as the season goes on that the apple crop will be light in the Province of Ontario. No greater quantity is expected than last year, with the quality poorer, owing to scab. This district is reported to be freer of scab than any other, except perhaps in the neighborhood of Owen Sound. Well sprayed orchards have a nice, clean crop of apples.

Tomatoes are ripening slowly and are again rising in price, a most unusual thing at this time of year. The bulk of the crop is later than usual, and the usual area has not been planted, owing to very unfavorable conditions at planting time. Consequently the chances are that tomatoes will not be at any time this season very cheap to the public.

Canners are in the market for all they can get, as they are likely to be very short on their contracted stuff. They will have to pay a good price per bushel to get them, and those growers who contracted their crops at 25c per bushel will feel very cheap this season. Under present conditions 25c per bushel is too small a price to pay the growers, and the land would be better devoted to something else.

Some localities report considerable mildew in the vineyards, chiefly on Rogers varieties, and there has been a good deal of spraying done with Bordeaux mixture. Otherwise the grape crop promises to be a good one.

One afternoon in the first week in August about 500 friends assembled at Vic-

toria Hall, Jordan Harbor, to bid farewell to F. M. and Mrs. F. M. Clement, of the Horticultural Experimental Station here. S. H. Rittenhouse, of Jordan Harbor, presented the guests of honor with a handsome set of cut glass, to which Mr. Clement made a very suitable reply. After an excellent repast had been served a lengthy programme was run off. The chief speakers were as follows: Miss Moyer, Jordan Harbor; Miss Nicholls, Vineland; Prof. J. W. Crow, O. A. C., Guelph; Prof. Caesar, Provincial Entomologist; D. Johnson, Fruit Commissioner, Ottawa; Reeve Claus, South Township; S. H. Rittenhouse, Jordan Harbor. Mr. and Mrs. Clement were to leave for their new home about the end of August. Mr. Clement has done excellent work at the Experimental Station, and has been of great assistance to the fruit growers of the Niagara District. The fruit growers fully appreciate the good work he has done and their good wishes will follow both Mr. and Mrs. Clement to their new home. What is our great loss is British Columbia's gain.

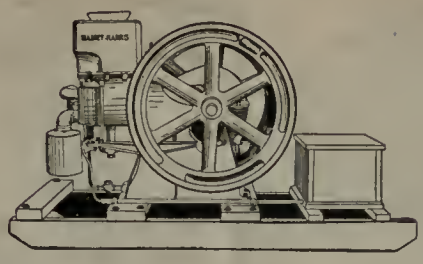
On Aug. 16th, the Lincoln Women's Institute, County Board of Agriculture, and the Niagara Peninsula Fruit Growers' Association held their joint annual picnic at Victoria Hall, Vineland. It was a beautiful day, and there was a large attendance. The following were the speakers in order of their addresses: Lewis Collard, of Niagara Township, chairman; Prof. McCubbin, St. Catharines; F. G. H. Pattison, Winona; Prof. Pickett, Illinois, U.S.A.; Dr. Margaret Patterson, Toronto; Mr. Marshal, M.P.P., Welland; F. M. Clement, Vineland Experimental Station; W. B. Roadhouse, Deputy Minister of Agriculture; Prof. Crow, O.A.C., Guelph.

Items of Interest

The Monthly Crop Reporter for August, issued by the United States Department of Agriculture, places the estimated yield of apples for 1916 at 62.4% of a full crop, as against a ten-year average of 54.9%. For peaches, the estimated yield is 48.5%, as against a ten-year average of 55.8%, while for pears the estimate is 59%, as against an eight-year average of 51.2%. The yield of grapes will be almost an average, the estimate being 80.8%, as against a ten-year average of 84.8%.

The Spokane Crop

A despatch from Spokane, Wash., dated Aug. 18, states that all indications point to good demand and higher prices for apples this year than last year. It is probable also that there will be little attempt made this



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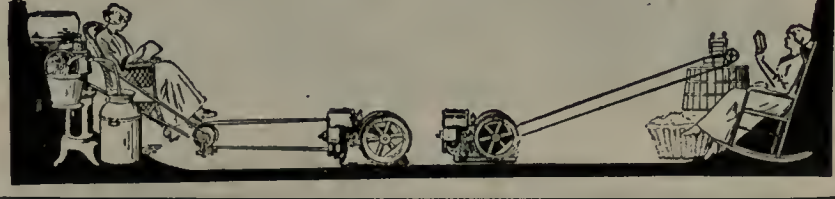

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References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies.

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When shipping apples the prices you receive depend on the quality of the fruit and the condition in which the shipment is received. Bruised apples are regarded as little better than culls and depreciate their value materially. It means loss of prestige too for the shipper, for the customer won't come back.

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which insures an even croze and every head fitting. Why be worried with poor barrels causing loss of time? We make sixhoop eight hoop, also six wood and two wire, which is the favorite. If these barrels get wet hoops cannot break. We can ship car loads containing about 330

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We ship thousands of barrels yearly to many large growers, dealers and fruit associations in Western Ontario, besides supplying 80% of the cooperage stock and barrels used in the great Eastern Ontario Apple Belt. Therefore we must give the best value obtainable. Our main plant is one of the

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year to market inferior fruit or fruit infected with fungus or worms.

Last year much inferior fruit was stored and offered for sale, with the result that the market was over-supplied and very poor prices were received for both good and inferior fruit, whereas if only the superior grade and varieties had been put on the market the price might have been much higher. Many dealers lost a great deal of money, which they invested in inferior grades of fruit last year, and it is probable they will be exceedingly cautious this season.

Little Potato Disease

The Little Potato disease cause little potatoes the size of a pea or a little larger to form on the potato stems, and no potatoes form on the roots. The reason is that this disease closes up the pores in the stem so the starch made in the leaves cannot go back to the roots to form potatoes.

Potatoes affected with this disease have small spots on the surface made up of germ masses that look like a little soil stuck on the surface. The difference comes out when one tries to remove the spots. They do not come off, while soil will. This disease is also called russet scab and Rhizoctonia. It is best not to save affected potatoes for seed.

Basket Standards

The necessity for greater uniformity in the size of fruit baskets continues to be a prominent issue in the Niagara District. Speaking on this subject at the last annual convention of the Ontario Fruit Growers' Association, Mr. Sheppard, Manager of the St. Catharines Cold Storage Company, said that the growers should try to have this matter settled as quickly as possible. "We have," he said, "six different sizes of 6 qt. baskets. This makes it almost impossible to load a car to advantage.

"Competition has been leading the manufacturers of fruit baskets to try to make a cheaper and cheaper basket until the veneer used in many is now too thin for strength. Some growers help this tendency towards greater confusion by asking for a smaller and smaller basket. The confusion in sizes leads to trouble over the covers, as sometimes we get wide covers for narrow baskets or narrow covers for wide baskets." A committee from the Fruit Growers' Association is working on the problem.

Bulletins and Reports

Recent bulletins and reports which have reached The Canadian Horticulturist include the following: "Late Blight and Rot of Potatoes," bulletin No. 10, issued by the Dominion Experimental Farm and prepared by Paul A. Murphy, B.A. The Ontario Department of Agriculture has also issued two bulletins: No. 240, "Some Bacterial Diseases of Vegetables Found in Ontario," by Dan H. Jones, B.S.A., Bacteriologist; and Bulletin No. 239 on "Potatoes," by C. A. Zavitz, B.S.A., Prof. of Field Husbandry, Ontario Agricultural College. The latter gives a report of a large number of experiments with potato growing at the Ontario Agricultural College.

The University of Illinois Agricultural Experiment Station is distributing bulletins No. 188 on "Methods of Fertilizing Sweet Potatoes," by C. E. Durst, and Bulletin No. 190 on "Soil Bacteria and Phosphates," by Cyril G. Hopkins and Albert L. Whiting of the Chemistry and Biological Departments.

The Ontario Beekeepers' Association has just issued its 36th Annual Report for 1915,

and the Ontario Agricultural College and Experimental Farm its 41st Annual Report for the same period.

The Dominion Department of Agriculture has issued the following circulars: "The Black Leg Disease of Potatoes," by P. A. Murphy, B.A., and Bulletin No. 26, entitled "Bees and How to Keep Them," by F. W. L. Sladen. This latter bulletin will be found especially beneficial to beginners, as it tells where to locate the apiary, races of bees, how to handle bees, production of honey, swarm control, wintering bees, requeening, etc., with illustrations.

The Quebec Department of Agriculture has issued the Eighth Annual Report of the Society for the Protection of Plants from Insects and Fungous Diseases for 1915-16 The following are some of the subjects dealt with: "Apple Plant Lice and Their Control," by Dr. R. Matheson; "Fire Blight," by Prof. F. Letourneau; "Some Potato Problems," by P. R. Cowan, and "The Black Knot of Plum and Cherry," by C. B. Hutchings. Other interesting subjects are discussed. Those interested should apply for a copy. We have also received the Annual Report of the Pomological and Fruit Growing Society of the Province of Quebec for 1915.

Two bulletins by Edwin Smith, of the Grimsby Experimental Fruit Storage Warehouse, conducted under the direction of the Dominion Cold Storage Division, have recently reached us dealing with General Notes, Schedule of Rates, and Notes on Packing and Packages. These bulletins deal at much greater length with the Precooling, Shipment and Cold Storage of Tender Fruit than the articles which have appeared from time to time in The Canadian Horticulturist, and fruit growers would find it of value to obtain copies.

As the result of 20 years experience handling fruit in the west, I find that the barrel is still the favorite package up to the first of the year. After that date the box is the favorite package, as the loss on damaged fruit is not so great—E. Maycock, Commission Dealer, Winnipeg, Man.

Leno Covered Baskets

The Express Traffic Association of Canada recently made application to the Railway Commission for permission to refuse Leno baskets by express. The hearing was set for July 10. Before the case came up Mr. Burr, chairman of the Association, was so well satisfied that the Leno basket, when equipped with a protector, which Mr. Geo. E. McIntosh, representing the Ontario Fruit Growers' Association, demonstrated to him, could be handled with the same degree of safety as the patent covered basket, that he withdrew the application in its original reading. This protector is made of material the thickness of a basket handle, about 1¼ inches high and made to fit around the top of the basket, having two pieces of veneer 1¾ inches wide, scored and tacked, each side about midway between the end of the basket and the handle. This is placed on the basket after the leno is put on, and should be ample protection.

As the leno covered basket is rapidly growing in favor, the possibility of having

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3o—Cook well.

4o—Clean, and then by boiling at least 10 minutes, sterilize your jars perfectly before pouring in the preserves or jelly.

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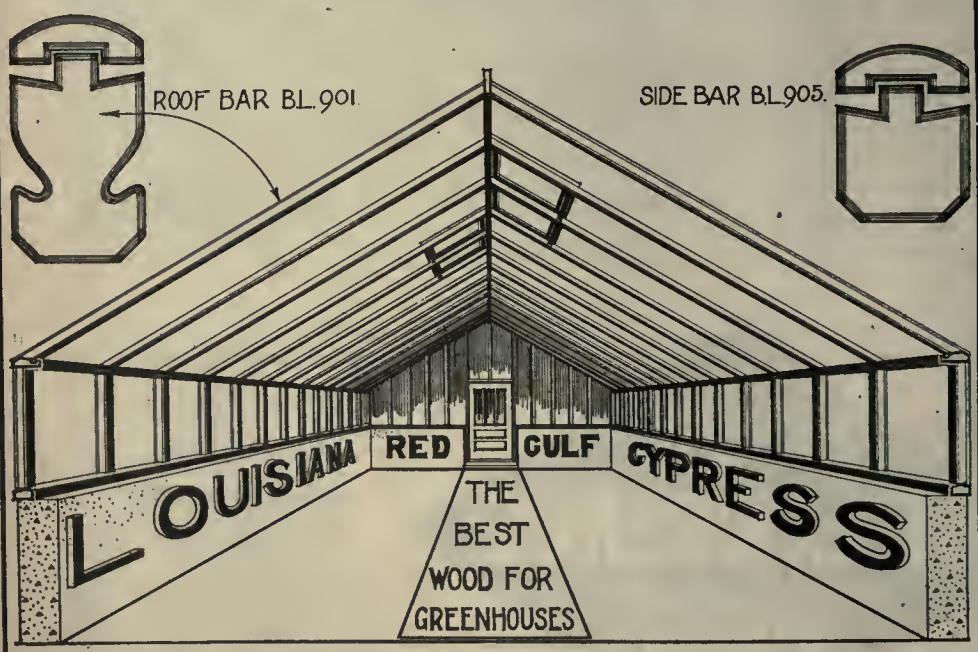

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it refused by the express companies was a serious matter to the growers, although it was hardly reasonable to expect them to carry such baskets in L.C.L. lots without some kind of protection. This method, however, will assure equal delivery with the patent covered baskets, and the cost is not very great.

Sugarless Canning Methods

R. C. Abbott, Coast Market Commissioner, Vancouver, B.C.

Many persons continue to seek information from this office as to the "sugarless method" of canning fruits, and no pains are spared in impressing on these people the great necessity of canning fruits this season, even with the high price of sugar, as in all likelihood canned goods will be just as high proportionately, owing to the increased demand, coupled with the high cost of sugar.

Plums and prunes can be put up very successfully without sugar, and we would suggest to growers that they place in each crate of plums shipped the short recipe for "canning without sugar," and also a few remarks encouraging housewives to put up more British Columbia fruit. The price of sugar should not interfere with the home canning of fruit, as fruit can either be put up "sugarless," or the amount of sugar used may be cut down from the usual 32 per cent. syrup to 25 per cent., or even as low as 16 per cent. We are sure that the amount spent by the grower would be many times repaid, and would assist in accomplishing the increased use of fruit, which is so essential. Any growers wishing further information may apply to this office for our Can. Cir. "B" 8-8-16, which gives considerable information as to the "sugarless" method and also the table of syrups.

A New Book on Shrubs

The Williams Book Stores Co., of Boston, Mass., are distributing a book entitled "Trees, Shrubs, Vines and Herbaceous Perennials," by John Kirkegaard, Dr. H. T. Fernald and Prof. E. A. White. This book contains over 400 pages, 2,096 descriptive classifications and 59 full page photographs. In it will be found general cultural information, and directions sufficient for all ordinary requirements. When and how to plant, pruning, spraying and cultivation are each treated comprehensively.

The authors have classified trees, shrubs and plants according to their suitability for certain purposes. The book contains lists of a few good hedge plants, some of the best vines and climbers, trees and shrubs with ornamental fruit, trees and shrubs with distinct colored leaves other than green, and a few of the best hardy ferns. This book can be purchased through The Canadian Horticulturist at $1.50 postpaid.

Recent bulletins and reports which have reached The Canadian Horticulturist include the following: Bulletin No. 185, "The False Cabbage Aphis," issued by the Agricultural Experiment Station of the Purdue University, Lafayette, Ind.; Bulletin No. 141, entitled "Cultural Methods in Bearing Orchards," from the Pennsylvania State College Experiment Station, State College, Pa., and Bulletin No. 293, from the Ohio Agricultural Experiment Station, Wooster, Ohio, entitled "The Grape Berry Worm." These three bulletins are all well illustrated. The last one contains several spray tables, which fruit growers will find of considerable value.

Annapolis Valley Notes

Eunice Buchanan, Berwick, N.S.

PLEASANT summer weather with occasional showers has succeeded the wet period, the foliage is luxuriant and clean. Cherry trees, which were so full of blossom in June, failed to set more than a scattering crop of fruit. Pears also dropped off. Strawberries made good prices; towards the last prices dropped to 6c. to 7c. The scheme for shipping strawberries to the United States fell through, as report says that berries were selling for 3c. a quart in Boston. Lombard plums sell well, but many other varieties are scarce. Many of the first flowers fell from the tomato plants.

Aphids made a renewed attack on young apple shoots in July. The tent caterpillar also appeared on different trees. Onion maggots have been troublesome and peas have been badly attacked by worms and mildew. During the wet weather disease attacked beans, but they are now recovering. In July the leaves on several large maple trees died and still adhere to the branches.

The general impression is that the apple market is going to be good. Crimson Beautys are now being bought for three dollars and a quarter for ones and twos Blueberries are very plentiful. Men are scarce, but some of the soldiers have been given furloughs to help gather the crops.

Advertising B. C. Fruit

R. M. Winslow, B.S.A., Provincial Horticulturist and Inspector of Fruit Pests, Victoria, B.C.

The British Columbia Department of Agriculture has, for a number of years, given attention in increasing degree to the creation of a consumer demand for British Columbia fruit.

In 1910 a start was made by the appropriation of $500 for the advertising of British Columbia fruit. This amount was continued in successive years. In 1914, a year of large production, display advertising of British Columbia fruits was carried in the principal papers of Alberta for several months. Apple weeks were held in Calgary, Vancouver and Victoria, and were very successful in promoting the consumption of apples. They also had an important effect, especially in coast cities, in diverting the trade from imported to Canadian apples. The British Columbia Fruit Growers' Association also issued 100,000 eight-page booklets on "British Columbia Fruit," which were widely distributed, both directly to consumers and in fruit packages.

In 1915, the amount of advertising was greatly increased by a special grant for that year from the Federal Department of Agriculture. An illustrated booklet of 80 pages was printed in an edition of 30,000 copies, and was widely distributed to consumers, especially in Western Canada, though requests for it came from many parts of the Empire, as well as the United States. Several window hangers in colors were gotten out and were largely distributed through the wholesale trade and by the Markets Commissioners to the retail grocers. The principal feature of the advertising was again the use of display space in newspapers and farm journals, the advertising running from the middle of June to the end of November.

By having the coast and prairie Markets Commissioners with offices at Vancouver and Calgary, respectively, in charge of the advertising campaign, it was possible to devote a great deal of personal attention to

If This Was Your Greenhouse—

THINK of the happy hours spent tending the flowers—of the delight of growing unusual plants and flowers—of keeping the home supplied with table decoration and green stuff. Imagine yourself comfortably working amidst your flowers while snow is falling thick outside. Think, too, of the spot in your grounds that would be graced by one of our beautiful greenhouses. We have issued a book showing Glass Gardens we have erected, and would be pleased to send you a copy. Write to Dept. B.

GLASS GARDEN BUILDERS, LIMITED

201 Church St., Toronto.
Transportation Building, St. James St., Montreal.
Factory—Georgetown, Ont.

The Hand Scuffler in Use.

Do You Want a Handy HAND SCUFFLER

THE handy hand scuffler is an ideal implement for garden weeding, and mulching. It is made of the best saw steel, and has four cutting edges, on two sides and one end. Lying flat on the ground, a slight pressure either in pushing or pulling only is required. It can be used endwise to chop tough roots. It is especially adapted for cleaning around bushes and plants.

Made in two sizes. The blade on the large scuffler is 9 inches by 3¼ inches; in the small one 6 inches by 2¾ inches. The handle is about five or six feet in length. The small size is more convenient for the enthusiastic woman gardener.

SPECIAL PREMIUM OFFER

One hand scuffler FREE (as above) with each new single subscription to The Canadian Horticulturist at $1.00. Will also sell these (express extra) direct to subscribers at 50c. for the small and 75c. for the large size.

THE HORTICULTURAL PUBLISHING CO.
Peterboro, Ontario LIMITED

CLASSIFIED ADVERTISEMENTS

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign, or single letter to count as one word, minimum cost 30c., strictly cash in advance.

REAL ESTATE

ALL KINDS OF FARMS—Fruit farms a specialty. Write for Catalogue. W. B. Calder, Grimsby.

FARMS—All kinds—Fruit, stock, grain or dairy farms for sale. Also have clients with good city property who would exchange. H. W. Dawson, Brampton, Ont.

SEEDS AND BULBS.

BULBS—Of all descriptions. Write for prices. C. Keur & Sons, Hillegon, Holland. New York Branch, 810 Bridge Street.

PLANTS.

FLOWERING PERENNIAL PLANTS for autumn planting. Phloxes, Paeonies, Delphiniums, Helianthus, etc. Also Madonna Lilies, Crown Imperials, White Narcissus—$1.00 collection of 10 plants—10c postage. E. P. Smart, 64 King St., Brockville, Ont.

BEES.

ITALIAN BEES AND QUEENS as advertised on page 228. Catalogue free. Deroy Taylor Co., Newark, N.Y.

BEST THREE BANDED QUEENS at lowest prices, after June 1. Also Bees by the pound. Satisfaction guaranteed. Send for circular. J. H. Haughey, Berrien Springs, Mich.

FOR SALE—Italian queens from the best honey gathering strains — untested queen, 75c; 6, $4.25; 12, $8.00; tested queens, 1, $1.25; 6, $7.00; 12, $12.00. Robert B. Spicer, Wharton, N.J.

NOTICE—Gray Caucasian Queens. Their superior qualities are early breeding, great honey gatherers, very prolific, very gentle, great comb builders, give better body to honey, very hardy, will work when other bees stay in hive, good winterers, the best all-purpose bee. Give me a trial order. Prices for August and September: untested, $1.00; select untested, $1.50; select tested, $2.50. Now is the time to requeen with the Gray Caucasian Queens for next season. Fay L. Barber, 290 State St., Louville, N.Y.

BEES FOR SALE AND HELP WANTED—I have control of some 85 colonies of bees and everything required for an apiary of one hundred, including extra hives for swarms, winter cases, movable honey-house, etc., which is all for sale. Now I want help, October 1st, to feed what is necessary and pack for winter, and also help in my own apiary. These bees, originally mine, have been selected for years. This is an exceptional opportunity to buy bees, earn some money and see how we make our sugar syrup and pack our bees for winter. State salary expected. Would like a lady helper also. G. A. Deadman, Brussels, Ont.

FOR SALE—50 colonies of pure Italian Bees. Guaranteed free from disease. Write for prices. M. Scott, 412 Kingston Rd., Toronto.

BEE SUPPLIES.

BEEKEEPERS—Please write for our Catalog. Morgan's Supply House, London.

1,000 GUMMED HONEY LABELS, two colors, any wording, for $1.30. Catalogue free. Eastern Label Co., Clintonville, Conn.

STORING IMPULSE—Spring weaklings' yields in long, good seasons equal strongest. Why? Because tiering up destroys work incentive. Quin-Compactness Hives' every super adjoins brood-nest—incentive always there. Address, Wm. F. McCready, Estero, Florida, U.S.A.

HONEY.

FOR SALE—7,500 lbs. of clover honey in 60 lb. cans. Highest offer with reference gets it. Chas. Dowson, Sonya, Ont.

details, and this personal attention did much to contribute to the very successful results secured.

In 1916 the plans call for a campaign much along the lines of 1915. The British Columbia Fruit booklet has already been issued in a revised edition of 30,000 copies. As a result of the distribution last year, the demand for the booklet is already very great. Newspaper display advertising is being carried along the same lines as last year and a special campaign on "Preserving without Sugar" is being conducted both on the coast and prairies.

Fluctuating crop and market conditions, as well as the changes which occur in the purchasing power of communities, are important items in determining the variation of details necessary for the most economical as well as the most efficient advertising, but, given attention to such details, advertising for British Columbia fruits is proving a good investment.

Items of Interest

The council of the city of Westmount, Que., the leading residential suburb of the city of Montreal, has passed a by-law which provides that all objectionable weeds and plants shall be cut by "every occupant and owner of any parcel or block of land in the city, whether vacant, occupied, used or unused." It is provided that the city itself may do the work of destruction without notice to the owner and charge the cost to him. Weeds specified include celandine, chicory, daisies, dandelions, thistles, wild endive, and wild mustard.

Woodall & Co., of Liverpool, the well-known British fruit merchants, in their annual review of crop prospects, report that the apple crop in the United Kingdom is likely to be an exceedingly small one, with the result that prices should rule high. Pears are practically a total failure. In fact, fruit crops of all kinds are well below an average season. They warn shippers, however, that only good, sound stuff should be shipped, as on account of the high freight rates ruling, anything poor or out of condition will court disaster.

Packing the Apple Crop

Prof. W. G. Brierly, University Farm, St. Paul.

Rigid grading is the first requirement for good packing. Wormy, scabby or deformed apples appear altogether too commonly in barrels. While grading takes longer and adds a little to the cost, it brings results which are altogether desirable. Well graded and properly packed fruit will sell when other fruit will not. In grading, all inferior fruit should be thrown out and the good fruit sorted into uniform sizes. While baskets may be used in some marketing work, the barrel will be found more generally acceptable for average conditions. The box is a special package which requires more skill to pack properly, and its use is not advisable without practice with the pack and experimenting in marketing.

In packing the barrel there are three steps or stages, namely, facing, filling and tailing. The barrel is packed from the face to the bottom, but this is easily managed. After the bottom head is removed and all nails hammered flat, well colored and sized apples, representative of the average in the barrel, are arranged in rings, stem down, on the face head of the inverted barrel. These facing apples should fit snugly. If too tight or slack, they will bruise and look bad when the barrel is opened. Usually two rings with three or four apples in the centre give the best face. Do not fill the centre with one large apple as the appearance of the others is spoiled. For the same reason, do not use little apples to fill out. Select the size which will come out right. A second layer may be put in if desired. These are commonly turned on their cheeks with the red cheeks between the apples of the first layer to give a better color effect. Apples of good color and representative of the size of the rest of the barrel should be used.

Filling the body of the barrel, while it progresses rapidly, should be done carefully to avoid slackness in the finished barrel. Shake the barrel gently but firmly after every half bushel of fruit is added, in order to settle them as much as possible and fill up all spaces. A board cut to fit the head, and with a handle to get it in and out readily, may be used when the fruit is within two inches of the top. Gently shaking the barrel with this board in place will give a level surface upon which the "tail" of the pack can be built in better shape than is possible otherwise. Finishing the pack is called tailing and consists of building the end up a couple of inches above the chines. Experience will tell you just how high to make the tail. If too low, the pack will slacken and bruise in later handling, and if too tight the apples on the tail will be crushed. The happy medium will give some flat bruising which is unavoidable, but the pack will be tight and handle well. Various sorts of inexpensive cushion caps are obtainable, which will eliminate some of the bruising.

The Press.

The best type of press is the lever press. It operates easily and quickly and can be shifted rapidly to take care of any tilting of the head. The screw press is slow in operation and not so quickly removed when the head is secured. Set the end hoops securely, nail all firmly and use "head-liners," the strips to reinforce the head so that there is less danger of it breaking out.

Marketing.

No general plan can be outlined for marketing. If the grower will produce good fruit, grade and pack it honestly, and establish a reputation for such fruit and pack, he will have the best basis for successful marketing. The solution of the marketing campaign is largely an individual matter. Business ability is a good asset, but a careful study of the apple market will always be of value. Knowing the extent of the crop and the value of a barrel properly packed will be a further help.

In a selling association many of the market problems are solved by the manager and the grower is relieved of that worry, but the individual operating alone may find profitable methods along several routes. Direct sales to consumers or grocers may be possible, or good business relations can be established with the commission men or dealers. While the dealer has often been blamed for poor sales, it very commonly is because he can place no confidence in the fruit or pack offered. The market or the dealer hardly can be blamed for poor prices if the grower is trying to get rid of poorly graded and poorly packed fruit. Nobody cares to buy such material. The premium of good prices and ready sales has gone, and will continue to go, to the grower who grades and packs carefully and honestly, thereby establishing a reputation for reliability.

The Canadian Horticulturist

Floral Edition

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Small Fruit Packages and Packing*

C. W. Baxter, Chief Fruit Inspector, Dominion Fruit Division, Ottawa

THE ever increasing demand for package goods has demonstrated that the public is willing to pay big prices to satisfy its desire for sanitation. Many of our very ordinary foods, which a few years ago were scooped out of a bag or barrel and tied in a paper sack, to-day are scarcely recognized in their beautiful lithographed labelled package and trade registered name. It is well known that in many cases the cost of the package and the advertising of the article exceeds one-half of the actual selling price of the goods.

Whether or not these new conditions have unnecessarily added to the high cost of living is not a question for our consideration at this time, but it proves conclusively that the question of packages for all food products is one of great importance and worthy of serious consideration.

Our fruit standards or grades apply only to fruit when packed in a closed package. This practically means a box or a barrel. We have, therefore, no legal standards or grades for the marketing of small fruit. Many growers believe, however, that some such standards or grades are desirable, but not practical.

During the last two years the question of standard fruit packages has been a live one with growers and shippers, especially in the Niagara District and in British Columbia. Many resolutions have been received by the Dominion Fruit Commissioner from representative bodies of fruit growers throughout Canada, requesting that fruit packages be standardized. Although nearly all growers are of the opinion that standardization is needed, there is still a considerable variation of opinion as to what are the best packages to adopt. So keen has this question become in one of our tender fruit districts that the growers are divided into two factions. Realizing that they cannot agree, these growers have asked the department to arbitrate the point at issue. Great care must be exercised, therefore, in selecting the packages before asking for legislation.

Growers in the province of Quebec are interested in all packages used in marketing fruit, especially those which may be used to market strawberries, raspberries, currants, gooseberries, plums and tomatoes, for these are the main crops of small fruits grown. In Eastern Canada the commercial package generally used to market these has been the berry box, and the six and eleven-quart basket.

Present Requirements.

Section 326 of the Inspection and Sale Act, Part IX., requires that every box of berries or currants offered for sale, and every berry box manufactured for sale, shall be plainly marked on the side of the box in black letters at least half an inch square with the word "short," unless it contains when level full as nearly exactly as practicable (a) at least four-fifths of a quart, or (b) two-fifths of a quart. This practically means that any box of a size between the two-fifths and the four-fifths quarts,

* From an address given at the summer meeting of the Quebec Pomological Society, held at La Trappe, Sept. 6th and 7th, 1916.

Some conception of the extent of the operations of Mr. Del Sole, the most extensive grower of vegetables on the Island of Montreal, may be obtained from this view of a crop of cauliflower on his farm at Montreal West. As soon as the cauliflower begin to flower, men are put through them, who bend the leaves over the flower, completely covering them. The result is that every cauliflower he sells is pure white in color, as well as crisp and well developed in form, so that he gets the highest price for it.

Fifteen and a half boxes of luscious fruit was picked from this eight-year-old McIntosh tree in the orchard of C. N. Brown & Co., Penticton, B.C. Penticton is at the foot of the Okanagan Lake, not Kootenay, as was stated in the September issue of The Canadian Horticulturist.

or any box smaller than the two-fifths quart, must be marked "short."

The marking of the word "short" on the side of the box was intended to convey to the purchaser the information that that particular box did not contain as much fruit as the four-fifths or two-fifths, but on account of the marking being done on the side of the box, very few purchasers even saw it. Instances are not few where purchasers, on enquiring as to the meaning of the word "short," were told that it was the grower's name.

When these regulations were framed it was probably expected that there would be practically only two sizes of berry boxes used, but this unfortunately has not been the case. It is possible to manufacture, and offer fruit for sale in any size box one may wish, providing the word "short" is marked on the side.

The lack of standard boxes has caused much dissatisfaction in the trade and among consumers. The strawberry season usually opens about December 15, with fruit imported from the southern states in imperial quart boxes, well filled. These are bought by the retailers at high prices, but, on account of the high price, are seldom offered in the original packages. The retailers buy smaller boxes of various sizes, containing two-fifths, one-half and four-fifths quarts, which they fill from the original packages. Many of these smaller boxes, although varying in cubic measurements, are made to appear to be the same size on the surface, as, for example, the surface measurements of the full quart, the four-fifths quart, and the pint are practically the same. The result is that there is no uniformity in the retail prices, and the consumers are unable to tell whether or not they are getting value for their money. These conditions obtain throughout the season when fruit is imported, which is usually from December until our Canadian fruit is offered in June.

Another disturbing feature is that there is no legal requirement as to the quantity each berry box must contain. Boxes of strawberries have varied from eight to seventeen ounces. In order to make the best of a bad purchase, the retailer is sometimes tempted to improve the appearance of the boxes by turning the fruit out and replacing the berries in the box in the same way that one can pile a cord of wood to make it measure a cord and a quarter.

During the past three seasons, the staff of fruit inspectors have been paying special attention to the filling of boxes and baskets, and have obtained excellent results. On account of the thinness of the slats used between the layers in crates which rest almost directly on the top of the boxes, great care must be exercised in having the boxes well filled and levelled off before being placed in the crate, in order have a full-appearing box when th arrive at their destination, witho bruising the fruit.

A visit to the Bonsecour Market Montreal will give one a fair idea how the greater percentage of sm fruit and tomatoes are packed and so Unlike the strawberry growers of O tario, who ship their fruit in crates co taining 24 to 27 four-fifths boxes, t growers in this province use a cra containing 54 short boxes—three laye of 18 boxes each. The crates are ma out of one-inch lumber, and are retur able to the grower.

The strawberry season usually com at a time when the growers are n overly busy with other crops, and the time is very profitably employed hauling their fruit to market instead drawing to the nearest railway stati and shipping by express. Thirty-fi crates containing about 1,800 boxes ca be loaded on an express wagon an drawn by a team of horses for lon distances. This method could prov profitable only where the grower ha the time to spare.

Plums and tomatoes are usuall marketed in boxes of various sizes, th old green painted John de Kuyper gi box being much in evidence. The lac of uniformity in the size of the contain ers makes the buying and selling mor or less of a gamble—more, I think, o the part of the purchaser than th grower, because the grower usuall knows the quantity each box contains.

Packages and Packing.

The packages now used and the pre sent methods of marketing may brin satisfactory returns to the grower s long as he continues to sell his fruit i the local markets, but if the productio of small fruits in Quebec is to increas in proportion to the possibilities of pro duction and marketing, growers mus adopt such packages as will insure saf delivery and present a neat appearanc when offered for sale.

There have been several kinds c containers used in shipping fruit i berry boxes in Eastern Canada, bu most of these have been discarded i favor of the 24-box basket and the 27 box crate. The latter has a decided ad vantage over the 24-box basket: it carrying qualities are better, and th cover may be removed as often a necessary without having to draw nail and injuring the cover thereby. There fore, I think the time is not far distan when the 27-box crate, or one similarl constructed, will be used altogether i eastern Canada. The thickness of th slats now used in the crates is not suff cient to allow the proper filling of th boxes without loss of time.

Every grower is familiar with the si and eleven-quart fruit basket, and a

hough we may admire the four-basket ·rate used by our California and Pacific ·oast friends, I am convinced that here is no better package in which to narket our eastern-grown plums, peaches, pears and grapes than the six and eleven quart basket. The six-quart basket is preferred for plums because in the eleven-quart baskets the weight on the bottom layers is so great as to cause waste and disfigure the packages.

The many shortcomings of our present legislation governing the packages and packing of small fruit have been revealed through the progressiveness of our fruit growers, and had it not been for the conditions brought about by the war advanced legislation would in all probability be in effect to-day.

(Continued on page 259.)

Points to Watch Ordering Nursery Stock*

H. S. Fry, B.S.A., O.A.C., Guelph, Ont.

At this season of the year many fruit growers are planning for increased plantings either this fall or next spring. The degree of success they will meet will depend to a considerable extent upon the thoroughness with which they guard the little points which often largely govern the character of the results later obtained.

There is comparatively little fall planting practiced in Ontario. The main objection to fall planting is that nursery stock in Ontario does not mature early enough to allow of planting in the fall. This is a result of the continued demand for stock for spring planting. The nurseryman caters to the public. If the majority of planters want stock for spring planting the nurseryman naturally does not make the provision for maturing his stock for fall planting that he otherwise would. Considering the difficulty of securing labor in spring, perhaps fall planting would be preferable for most kinds of fruit, provided it were possible to get matured stock.

The majority of fruit growers do not buy as intelligently as the minority. It is the majority to which the nurseryman caters, and when they realize that fall planting is satisfactory and begin to act accordingly, the nurseryman will prepare to meet their requirements.

Now is the time to order stock for next spring's delivery. The nurserymen show few favoritisms. Their method is, first come, first served. The earlier you get your order in the greater chance you will have of getting good stock, and of having it arrive at the proper time next spring.

Before communicating with a nurseryman have your mind made up as to exactly what you want. Know what varieties you are going to plant, what age of stock you prefer, and the grade. The varieties, of course, will depend on the choice of the grower, and to some extent on the district. The grade should be always No. 1, except in rare cases where one may get an exceptionally good lot of No. 2 stock. Remember that the initial cost is immaterial when you consider that these trees will likely remain in the ground fifty or more years.

When it comes to choosing the proper age of stock to plant there is a wide variation in the opinions of good fruit growers. The majority of stock planted is two-year-old, but some good fruit growers favor three-year and some one-year stock. The reasons given, of course, are very different, but each grower is usually convinced that his way is best.

The reasons advanced in favor of one-year-old stock are mainly those relating to the heading of trees. The nurseryman heads trees to suit the average planter. The intelligent planter, however, may want low-headed trees, because of the lesser number of windfalls and the greater ease of harvesting the fruit. At present, the man who wants a low-headed tree must purchase one-year-old stock, so that he can head the trees himself, or if he wants to plant two-year-old stock, he must go to the nurseryman a year before he wants the trees and have them headed low especially for him. Against the one-year-old stock, the chief fault is that apparently it would require one to two years longer to bring these trees into bearing than if two or three-year-old stock were used.

The popularity of the two-year-old tree probably follows from its being already headed for the average buyer, and its being of a convenient size to handle. It is an average tree for an average man.

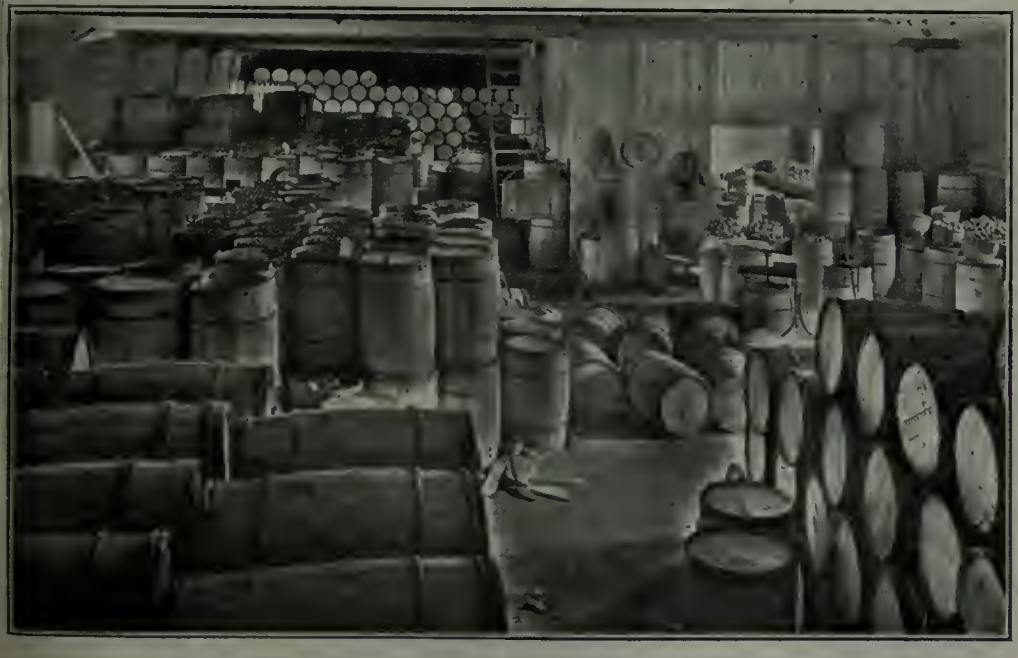
Some good growers assert that the three-year-old trees come into bearing so much earlier than the others that it pays them to buy trees of this age, and through pruning work for a comparatively low-headed tree. The practice of planting three-year-old trees obtains widely among growers of the Spy apple. The Spy is naturally a very slow tree to come into bearing. To cut down this time they work from both ends—they use three-year-old trees of some early-bearing stock, and top graft to Spy.

For the man who intends setting out any considerable number of trees next spring, the wisest thing he can do is to pay a visit to the nursery and choose personally the block of trees he wants. In the fall the nurseryman strips the leaves off his stock, digs up his trees and heels them in for spring shipment. If the buyer will visit the nursery before the trees are dug, he will be able to see the stock he is ordering. It is possible that the nurseryman will not care to have his plans disorganized by the individual buyer, but if the grower can choose his stock, three benefits will be effected.

First.—There will be less chance of disagreement between the nurseryman and the customer.

Second.—There will be less danger of the stock's coming untrue to name.

* This article was written by an editor of The Canadian Horticulturist from notes taken during a recent interview with Mr. Fry.



This photograph of the packing house at Port William, N.S., gives some idea of the extent which cooperative marketing has reached in this district.

Picking grapes in the vineyard of J. S. Cockburn, Winona, Ont.

It is likely that the mixing of trees, which causes such trouble to fruit growers, is done during the handling of the trees between the time of digging in the fall and of shipping in the spring. If John Jones, a grower, chooses his stock at the nursery before it is dug, that stock when dug will be put aside for him. It will not go into the general stock, and will likely be true to name.

Third.—There will be a greater chance that such stock will arrive in time for planting if it has been chosen and set aside before the rush of orders comes in.

Of course, it would be foolish for the man who is only planting a few trees to visit the nursery, but if he is planting say ten or fifteen acres or more, it would be a paying proposition. It must be remembered that the worth of the orchard during its bearing period will depend to quite an extent on the quality and shape of the trees purchased.

A question which often arises during the purchase of nursery stock is whether it is wise to purchase trees from nurseries in the Middle Central States. So far as acclimatization is concerned, there seems to be no objection to this practice. The trees are young and have not yet become acclimatized to any district. Again, the stock upon which the trees are grown is in many cases the same as is used by our Canadian nurseries. The chief objections are freight and their drying out in transit during long trips and while being fumigated at the port of entry. Of course, if they are well packed they should travel all right. However, other things being equal, we should always put Canada first!

The Merits of the Duchess Apple

E. H. Wartman, Dominion Fruit Inspector, Montreal

FRUIT growers will do well to pay more heed to the merits of the Duchess apple. In spite of what has been said against them, year by year their merits are becoming better recognized by many growers. Those growers who have orchards of this variety, especially where ice is available for shipping purposes, have much for which to be thankful.

My own experience with this variety dates back many years. On our own home farm we planted fifteen trees. These trees were planted on a rich loam, had natural drainage and good care, and naturally we expected good results. We were not disappointed. When the trees were six years old, while looking over a beautiful healthy well balanced tree full of fruit, I spied one specimen more beautiful than the others. This I picked and laid it on the house scales. It weighed one half pound, which we would call to-day a remarkably large specimen. This tree to-day is quite forty years old, and still bearing fine fruit. Many years ago our Ontario fruit experts, while rating our apples, gave the Duchess ten points out of a possible ten for home market, foreign market and cooking, but only two points for dessert. This gave it thirty-two out of forty points, which should give it a place of great merit. Those who live near a large market, and who can place large quantities in their freshness and bloom without having to pay express or freight, are most favorably situated to make money out of this desirable apple.

The situation is different with those growers who live two or three hundred miles from their market. These men have had their trials and losses and low prices. I am persuaded, however, that the man who raises from one to several cars of this apple has not yet done his best in trying to place this variety on the market in a sound condition. The man who lives near a lake, river, or even pond, where he can get a plentiful supply of ice for little cost in the winter months, when fruit men are not so very busy, should do so. He should look ahead to the cooling of his Duchess in the coming of August. It is presumption for a man in this enlightened age to pick or pack these early apples in the temperature of 100 degrees F. or more, as it was this season in Duchess time, when, in some cases four days elapsed from the start of packing to the landing in Montreal. Under these conditions there was no chance for heat to get out of the barrels, but they continued to generate heat as the fruit ripened. To place in cold storage at this stage would be unprofitable, for what the apple had lost nothing could replace.

I am not an advocate of keeping any fruit long out of its season. Any fruit is at its best for but a short time, and the most tender a very short time. As one writer has said, the peach is at its best for one hour. I do believe it is necessary to land all fruits in sound and hard condition. This can be done by keeping fruit cool by using ice in sufficient quantities. This has been proved many times. We receive cars of California peaches here in perfect order after ten or twelve days in transit. The secret is bunkers full of ice all the way at a cost of from $75 to $90 a car. Just a little more proof.

In the year 1902 I received Duchess apples in Cork, Ireland, and Wolverhampton, England, after being fifteen days from the trees, and still they looked well after being ten days on exhibition plates. This same year—1902—one orchard in Ontario bore over 3,000 barrels of Duchess apples, and were sold for sixty cents a barrel, when I sold the same quantity, three bushels, for about $7.50 per barrel. There must have been a screw loose somewhere!

A few days ago I heard our auctioneer say, "I can't sell apples. Will Mr. So-and-So come up and try?" I really felt sorry to see such a condition. But there is a remedy which I have named. When apples are gone in quality it is a poor time to try to save them. The Duchess has done wonders in its day. One case I could name where two hundred barrels of Duchess apples sold in Montreal for one thousand dollars, or five dollars a barrel.

I can remember buying the finest Northern Spy apples all picked for fifty cents a barrel, tree run. This was about twenty-eight years ago. Of course, I took all winter apples at the same price. This was the best offer the grower could get. One would be led to say from this statement, "How does horticulture pay?" Let the orchardist who has a good orchard and is a good salesman count up his sales for twenty years and get the average price per barrel, then the secret is known. Yes, the old Duchess tree should not be rooted up and burned yet. Where is there an apple in our Dominion more free from fungus than the Duchess? If shipping from Montreal had been normal this year I believe one thousand barrels could have been bought within a radius of fifty miles of this city. I also believe there would have been a net return of three dollars a barrel for them.

Methods of Large Apple Grower

THE largest fruit farm in Ontario is that of W. H. Gibson, of Newcastle, Ont. It comprises over one hundred acres in fruit, of which twenty-five acres is not yet in full bearing. Last year this orchard produced 3,500 barrels of apples, 1,100 baskets of cherries and 70 barrels of pears. "Fifteen years ago," said Mr. Gibson to an editor of The Canadian Horticulturist, who visited him recently, "I had twenty or thirty old trees. None of my young trees had come into bearing, and one day was sufficient for the picking and packing of the entire crop of apples. Last year my men were packing apples until the middle of March."

Mr. Gibson's crop this year gave great promise during the season of bloom, but will be well under the average on account of the hot, dry spell. A wind and hail storm about September 1st took off about twenty per cent. of the apples, causing a loss of about $1,000. Mr. Gibson will, however, have about 2,500 barrels of apples, 50 barrels pears, and 800 baskets of cherries this year.

In such a large orchard one would naturally expect to find a number of varieties of apples. The chief money-maker is Ben Davis. Stark, Spy, Golden Russet, Baldwin, Duchess, Wealthy and McIntosh are also made leading lines. The pear orchard is largely Bartlett.

Mr. Gibson is working toward low-headed trees by the practice of dehorning. Dehorning, or cutting off the upright branches, he finds, results in a vigorous growth of side branches, and necessitates the heading back of these branches. The lower branches are not cut back, but are allowed to droop over a grass strip. This leaves the fruit in a more attainable position for the pickers, and results in a stockier and stiffer tree—one better able to withstand wind and weather.

The young orchards on Mr. Gibson's farm are kept cultivated right up to the trees. When the trees, however, come into bearing it is Mr. Gibson's practice to leave a ten foot sod strip along the orchard row. As Mr. Gibson plants his trees thirty-five feet apart this leaves a twenty-five foot strip for cultivation. In a bearing orchard there is no good reason, in Mr. Gibson's opinion, for cultivating closer to the tree than five feet. This leaving of a sod strip results in a saving in labor, for it is the cultivation underneath the branches of the trees which means work. On the other hand, there are several benefits which accrue from this sod strip. The sod acts as a cushion for windfalls. Trees ripen up earlier and go into the winter in better condition than trees under complete cultivation. And most important of all—a much better colored fruit is obtained.

It will be remembered by our readers that it was upon the orchard of Mr. Gibson that the dust-spraying experiments, described in the July issue of The Canadian Horticulturist, were carried on this year. With but one year's results to judge from, it would be unwise to venture an opinion as to the comparative value of lime sulphur and dust-spraying. The part dusted, however, shows as good results as the part of the orchard treated with lime sulphur.

Mr. Gibson sells all his fruit through the Newcastle Fruit Growers' Association. This is a live association. It owns a large concrete fruit house, in which is made 12,000 to 15,000 barrels and 5,000 boxes a year. The entire output of this association has been sold this year to McWilliam & Everest. Alexanders and Wealthys are sold in boxes, the rest in barrels.

Harvesting the apples is comparatively easy with such low-headed trees. Photo shows a Banks Gravenstein on the farm of Joseph Kinsman, Lakeville, N.S.

Spraying Conclusions*

Prof. W. S. Blair, Kentville, N.S.

As a result of experimental work in the application of spraying mixtures, we are safe in drawing the following general conclusions:

The spray before the leaves open is not likely to give results sufficiently great to pay for its application.

Two foliage applications before blossoming are desirable. More care should be given to thoroughly protect the foliage up to this time.

Two thorough sprays before blossoming followed by two after will give practically clean fruit.

The 1.008 specific gravity test strength of lime sulphur is sufficiently strong to control scab. A greater strength is a waste and may cause foliage injury and possibly a loss of fruit from burning.

Any of the well established brands of arsenate of lead seem to give equally as good results when used in lime sulphur.

Lime sulphur alone is nearly as good a fungicide as lime sulphur arsenate.

Owing to insect injury the arsenate cannot be safely omitted from the spray.

Lime sulphur is equally as good as bordeaux for scab control.

The greatest objection to bordeaux is the russeting of the fruit, which if bad will reduce the grade.

The home-made concentrated is as effective for scab control if used at the same specific gravity test as the commercial concentrated.

Soluble sulphur alone without arsenate of lead is not as good a fungicide, evidently due to the arsenate rendering it more adhesive.

*Extract from a paper read at the last annual convention of the Nova Scotia Fruit Growers' Association.

A branch of Flemish Beauty pears grown in the orchard of E. M. Smith, Winona.

Soluble sulphur arsenate is liable to cause foliage injury.

Spraying with strong lime sulphur for San Jose Scale will kill also the Oyster Shell Scale and Blister Mite, three birds with one stone.

Barium chloride is of no practical value for lessening foliage injury when added to soluble sulphur arsenate.

Fruit Pointers

Cuttings of grapes may be taken this month and stored in sand or sawdust until next spring, when they may be set out.

Prune grapes as soon as foliage is off. Lay them down and cover with earth before the ground freezes.

See that the grass is pulled away from the base of small trees. Put wire protectors about them so mice or rabbits cannot injure them during the winter.

Damage from white grubs bids fair to be great next year, unless extra efforts are put forth to get rid of the grubs now and next spring. Three means of keeping them in check are suggested: Plow in the autumn, destroy May beetles in the spring, rotate crops. Do not plant strawberries on land known to be infested.

When some of the New York grape growers wanted to change their varieties, they never thought of taking out the old roots. They grafted the improved varieties on to the old stalks. This changed their production without any apparent loss. If the apple is treated in the same way as the grape, it stands to reason that many British Columbia orchards could be brought to bear a few varieties of the best commercial apples in a few years. This saves waste and assures an increased income for the grower.

The Canadian vs. the American Standard Apple Box

A. H. Flack, Chief Fruit Inspector for Prairie Provinces

IN packing apples in boxes, possibly the greatest difficulty encountered is to secure the correct height. This can be done only by following very closely the table of packs which require some sizes to be packed on end, and others on side. With experience, this difficulty disappears, but during the time this experience is being gained some very disreputable packs find their way on to the markets.

If we had a package in which the height would always come right, with all sizes packed one way, it would be a great help. This can be done by using the Oregon box, which measures 10½ ins. x 11½ ins. x 18 ins. inside measurement, as compared with the Canadian box inside measurement of 10 ins. x 11 ins. x 20 ins. It should not be misunderstood that with the Oregon box the packs must be 2—1, 2—2, or 2—3, as the case may be, in fact, the table of packs is practically the same as with the Canadian box, but all sizes pack on side, which simplifies the matter. This fact alone is therefore sufficient to warrant us seriously considering the advisability of adopting this package as a standard apple box in Canada.

To western shippers, and, in fact, to all box shippers, there are several advantages that will accrue by using the Oregon box. The peach and pear box each measure 18 ins. in length, inside measurement, which is identical with the Oregon apple box. For loading mixed cars, and storing box shooks, these advantages should not be overlooked, and are generally acknowledged.

Western manufacturers claim that standardizing fruit packages, endeavoring to secure as many as possible the same length and width, is a very important matter in reducing the cost of the package. This also is a point that must be considered.

As the standardization of fruit packages is obviously an important matter, and one that is creating considerable interest among those depending upon the fruit industry, this is an opportune time to give the Oregon box serious thought. By far the largest proportion of the apples from the west are now shipped in this package, and some of the largest Ontario box packers have adopted it this season. The following is a table of packs that should be followed when using the Oregon, or American standard apple box:

Table of Packs for American Standard Apple Box. Size: 10½ x 11½ x 18.

No. of Apples in box.	Type of Pack.	Pack.	Actual tiers.
32	Diagonal	2—1, 3—4	3
36	"	2—1, 4—4	3
41	"	2—1, 4—5	3
45	"	2—1, 5—5	3
50	"	2—1, 5—6	3
48	"	2—2, 3—3	4
56	"	2—2, 3—4	4
64	"	2—2, 4—4	4
72	"	2—2, 4—5	4
80	"	2—2, 5—5	4
88	"	2—2, 5—6	4
96	"	2—2, 6—6	4
104	"	2—2, 6—7	4
112	"	2—2, 7—7	4
120	"	2—2, 7—8	4
113	"	3—3, 4—5	5
125	"	3—2, 5—5	5
138	"	3—2, 5—6	5
150	"	3—2, 6—6	5
163	"	3—2, 6—7	5
175	"	3—2, 7—7	5
188	"	3—2, 7—8	5
200	"	3—2, 8—8	5
213	"	3—2, 8—9	5
200	Straight	5 8	5
225	"	5 9	5

All apples are packed on the side in the American apple box. The foregoing table should be used in conjunction with circular No. 8, entitled, "Packing Orchard Fruits," which can be secured by writing to the Department of Agriculture, Victoria, B.C., and Bulletin No. 40 of the Dairy and Cold Storage Commissioner's Series, Department of Agriculture, Ottawa.

Vegetable Reminders

These long evenings are good time to plan next year's garden and to study better methods.

Store onions in a cool, well-aired place.

Celery banked with earth late in the fall seems more palatable than when boards are used. Do not bank when the foliage is at all moist, as this will aid decay.

Squash should be carefully handled in hauling, and placed one layer deep on wooden racks in a warm, well-ventilated storage house.

Potatoes should be stored in a cool cellar. A temperature of about 35° is good. If they are kept warm enough to sprout badly, a loss of from ten to thirty bushels per acre in yielding power may result.

Store cabbages in a cool cellar, head down. They may be hung from supports, or the roots may be cut off and the heads wrapped in newspaper and laid on a shelf, but they should be hung heads down for a while to insure draining the water out.

October Precautions and Preparations for Winter

Geo. Baldwin, F.R.H.S, Toronto, Ont.

MORE important gardening opportunities are missed between September 15th and October 15th than at any other time in the year. Spring has its own particular rush of seeding and planting. Three-fourths of all other planting can be done as well or better in the fall. Save a year in the development of your grounds by planting permanently daffodils, darwin tulips, paeonies, and lilies. You will probably save that much time by planting trees and shrubs this fall. The chances are that, if you leave their planting until spring, you won't plant at all—you will be too busy.

The fall is the best time to perfect your perennial border, by rearranging, multiplying, and buying new plants when there is a better assortment to choose from. Enjoy your garden longer this year by having a lot of old boxes, barrels, and matting to throw over the vegetables and flowers to keep frost out. Before frost comes, pull up the tomatoes by the roots, fruit and all, and hang them in the cellar or outhouse. Tomatoes, like pears, have a better flavor when ripened on the shelf or in the cellar. You can gain a month on spinach by sowing seed outdoors now. Mulch the little plants toward the end of November. Treat pansies the same. A crop will be ready about the end of April.

Having secured your bulbs for the garden, buy half a dozen bulb pans and plant some of each variety of bulbs for winter blooming in the house. Mulch everything you plant in the garden, but not until the ground is frozen. Prune all shrubs that need shaping up, and bush fruits to a few strong shoots, cutting about three feet long. Bring hydrangeas and oleanders that have been in tubs into a dry cool cellar for the winter and trim them into shape.

The proper time to take up gladoli, dahlias, cannas, and tuberous begonias is when the tops are killed with frost. Put them in a dry, frost-proof cellar, giving the canna a little more attention by leaving the earth on the roots and keeping it a little warmer than the others.

The old-fashioned way of covering rose bushes with straw and manure for the winter is not the correct method. From long experience I find that drawing the earth up around them five or six inches is not only the easiest but the surest way of protecting them. The climbers may be bagged or tied up with straw, but will do just as well without any protection, unless they have been planted in the fall, when they will need some protection. For the district of Toronto, the spring is the best time to plant or transplant any kind of rose.

Give the celery its final earthing up now, and have some boards and straw handy for frost protection. Ground that has been occupied by garden crops is best thoroughly dug in the fall and manure added. Do not break the clods; simply turn them upside down on top of the manure you have trenched in. This exposes them to the frost, and to consequent aeration during the winter. The strength of the manure will have become incorporated with the soil underneath. The following spring, such soils will be found to work well, and may be prepared for any desired crop by levelling down and scattering on broadcast slaked lime and powdered sulphur for cutworms and grubs.

Have a general clean up, burning everything that will burn before the snow flies. If you have time, it would be just as well to have all materials necessary for making the hot-bed ready to make an early start in the spring. Cut and burn the tops of asparagus. Remake the rhubarb bed if two or three years old. It will pay to do so.

What Bulbs to Grow

R. G. Henderson, Montreal, Que.

Crocuses are essential if the garden is to be enjoyed to the full in the spring. They can, moreover, be used either in beds in borders, in grass, or in pots for the house. Crocuses in pots should be planted close together, and the pots plunged outside until growth begins. Twelve cents will purchase sufficient for two pots. Snowdrops undoubtedly look best in clumps under trees and in grass. Snowdrops, crocuses and narcissi show to much greater advantage where the ground is slightly undulating, and those who are fortunate enough to possess a semi-wild spot, opportunities offer themselves for producing delightful effects.

Nor must we overlook other kinds of bulbs merely because they do not happen to be quite so well known. For those who have a glass house or winter garden I would recommend a few bulbs of the Freesias. They are not costly, running to about five cents each. The flowers grow on stems about eighteen inches high and are about two inches long with a strong perfume. They are pure white, with some yellow in the centre.

The scillas are a large family, and should be given a place in every wild garden. An early kind is Scilla bifolia, flowering about March. Another, perhaps better known, is S. Sibirica, of a bright blue color, which does magnificently for pots. Scattered about amongst snowdrops they give a charming effect.

This shows how flowers brighten the backyard of Mr. R. A. Fletcher, 144 Howland Ave., Toronto, Ont.

Sanseveria Tealorlaca, four years old, grown by H. Irwin, Westmount, Que.

Sanseveria Tealoriaca

H. Irwin, Westmount, Que.

The accompanying illustration of a sanseveria tealoriaca was secured when the plant was four years old. I obtained a small plant from Dreer and planted it in good potting soil. When moved into the house in the fall it began to wilt and got worse on getting more water. The roots were found to be rotting. I cut them off short and repotted the plant in a mixture of one part gravel, sifted to size of peas, two parts sandy potting soil, and put the plant in the greenhouse during the winter. Since then I have kept it in the garden during the summer in a shady , sheltered spot, and in the parlour during the winter.

The flower seen in the illustration is very sweet and gave eight or nine seeds, from which six seedlings were raised in the greenhouse. Its leaves are spreading and have narrow, straight dark green bars about an inch apart. Do any readers of the Canadian Horticulturist know of seeds being raised in the open, so far north? I now have two plants in twelve inch tubs, each plant four feet high.

Every tulip bulb that is planted should be crisp and firm to touch. None that are soft or that show any signs of decay or discoloration should be planted. —H. T. Gussow, C.E.F., Ottawa, Ont.

Are There Barren Paeonies?

By J. McPherson Ross, Toronto

IN my garden we had in cultivation for seven or eight years at least over a dozen paeony plants of the Chinese type. They had grown into great strong bushy plants. The soil was clay, but kept heavily manured. Every spring they made great promise of flowering, showing numerous buds, and we were led to expect great masses of bloom, but every year our hopes were dashed. The buds remained in a stationary condition, and finally dried up when the size of small marbles and fell off. We attributed it to every imaginable cause, as frost, too dry or too wet weather, soil too poor, or the reverse. We had abundant healthy foliage—plenty of everything, excepting bloom.

One day, while reading a horticultural publication, we came across an article describing flowerless paeonies. It stated that this variety, one way or another, had got largely distributed over the country, to the great annoyance of everyone. To the annoyance we could bear testimony, as it takes years before you can identify or prove its character for not flowering. The article also stated that every method of cultivation had been tried in numerous cases, and every reason but the right one had been given before condemning it as entirely worthless. Obviously, the only thing to do was to dig them out and throw them away. This statement so entirely agreed and described the experience I had had with my plants that I immediately condemned my plants, dug them up and threw them away. In conversation with many people afterwards, relating their experience with their paeonies, I advised them to destroy the plants they had and procure new plants from growers who had real blooming plants, and there the matter rested. Ample evidence kept turning up all the time that there was no doubt of the practical existence of the flowerless paeonies, and the only difficulty was to advertise the fact and let growers know of it, and thus get it rooted out.

A few weeks ago, when I was passing a friend's garden, he hailed me Pointing to a group of paeonies, he asked, "Do you know anything about paeonies?" I answered that I thought I did. "Then," he said, "what is the matter with them? They have not flowered for years, if they have ever flowered." "Oh," I said, "you have that flowerless variety," and thereupon I started to tell the experience I had had with the variety, and advised him to throw them out. "Hold on," he said. "What you are saying I was going to do a year ago. I had got tired growing these big cumbersome plants year after year without results. I had just decided to root them up when an old English gardener told me what was the matter with them. He said, 'They have all got tap-rooted, and want digging up. Divide and have the long tap-roots cut hard back; replant and you will have flowers.' I did so, and the past summer they bloomed quite freely. I only dug up half of them, leaving those till this fall, when I propose doing the same to them."

As my informant is a careful and enthusiastic gardener, I know his experience is to be relied on. I take pleasure in relating it, as I think the information is valuable to paeony growers. So, before condemning plants that appear barren or flowerless, try cutting off the tap-roots, as aforesaid, and watch results.

October is a good time to transplant paeonies. Take the trouble to prepare the location well by trenching or subsoiling. See that it is well drained. Dig in liberal quantities of well-rotted manure, or failing a supply of that at the time, apply it liberally as a mulch when the ground is frozen, forking it in in the spring, and again mulch after the first hoeing.

All varieties are desirable and thrive, preferably in beds or borders by themselves, with lots of sun and air.

Objections are made to the barren appearance of such plantations when flowers are over. This is remedied by planting tall-growing annuals, as nicotines or cosmos, interspersed through the beds of paeonies. A few shrubs of the hydrangea pan. will also lighten up the bed with bloom in the fall.

It may be well to remind any who hesitate to order bulbs on the ground of expense, that it is really less extravagant to purchase a dollar's worth of bulbs than it is to lay out the same amount every year on seeds. Bulbs last for years, and go on multiplying. It is, therefore, rather the reverse of extravagance, but may be looked upon as a profitable investment from a gardener's point of view.

When the tomato vines have been killed by frost, pick off all green tomatoes and put those that are turning red or are whitish in appearance, in a dry, sunny place to ripen. Those that are very green will not be first class when ripened in this way, so they should be prepared for use green.

Do Not Forget the Lilies

B. C. Tillet, Hamilton, Ont.

I OFTEN wonder why it is that we do not see more of the lilies. Perhaps it is because it is not known how easy it is to grow them, or because they do not flower the same year the bulbs are planted, or possibly because the bulbs are supposed to be too expensive. As a matter of fact, they require no more care than other bulbs and many of them are quite hardy. It is true the bulbs do not bloom the first year, but then few bulbs bloom the year they are planted—planted early in the fall, however, some of the lilies can be brought into bloom by November, whilst other kinds will bloom the following summer. Once planted they do not need to be disturbed, so that although the initial expense may seem a heavy one, it must be remembered it has not to be incurred every year. Although the bulbs cost from ten to twenty cents apiece, the great beauty, elegance, and fragrance of the blooms a great deal more than repays us for the outlay.

Every garden should have one or two groups of lilies. I have had opportunities that few, perhaps, have had, of seeing all the best known lilies grown to great perfection. To see them once is to long for them ever after. I would strongly advise all readers of The Canadian Horticulturist who possess nice flower gardens to make a beginning this fall and not to be shy about doing so on account of an outlay of a dollar or so.

Regarding which kinds to grow, each has its own charm, and once one has lived among them, as the writer has, one wants them all. For a beginning, however, the safest way, perhaps, is to get a few of the hardiest kinds. I will name a few of these as they occur to me, and give a few hints on how they were grown where I saw them. One of the hardiest of all the lilies is lilium speciosum, albeit in appearance so fragile. In addition to being a good doer in the border, it does equally well as a pot plant. There is a pure white variety. Ask for lilium speciosum album—the bulbs of which are about twenty cents each—not a prodigious outlay. The purchase of five bulbs will enable one to put, say, three in the ground and two in pots. Put a single bulb in a six-inch pot, or three in an eight-inch pot, providing an inch or two of drainage covered with a layer of fibry compost and two inches of soil. Place the bulbs on this and add enough sand to surround them nearly to their apex. When the growth is six inches high, fill up the vacant space in the pots with compost for the stem roots to feed on. These lilies, like auratum, produce two kinds of roots, those at the bottom of the bulb and those at the top called stem roots. The pots can be put either in the glasshouse or in a window where there is plenty of light and air. Read carefully the hints given at the end of these notes on cultivation and you will be pretty sure to succeed, if you follow them.

Another of the hardy lilies is candidum. Be sure and get one or two bulbs of this lily—sometimes called the madonna lily; it has large pure white blooms and is a great addition to a border, so much so that one might almost say that no border seems complete without it. These bulbs are usually ready for mailing about October 1st. The bulbs should be planted one to a six-inch pot or three to an eight-inch pot. This is not one of stem rooting species, so the pot may be half-filled with compost and the bulb placed thereon and filled up to within half an inch of the rim. Use two parts loam, one of leaf mould, and a little sand. The pots are best kept in a cold frame until the growth begins and then put in a temperature of about 55 deg. Planted early in the fall, the leaves will soon appear and the stems often bear as many as twenty blooms. It cannot be forced a second season.

One of the most popular lilies for the glass-house and window is lilium longiflorum. It is one of the snow-white lilies, its distinguishing feature being the long trumpet-like flowers eight inches in length. It flowers out of doors in June and July and has the advantage of being equally well suited for either pot culture or the border. Bulbs of this species are often "retarded" by placing the bulbs in refrigerating chambers; thence it is possible by potting at intervals of eight weeks to have them in flower all the year round. No hard forcing is required, a temperature of 40 to 50 degrees being sufficient to bring these lilies into flower eight weeks after potting.

Bulbs of longiflorum, if not retarded, should be potted early in the fall and placed in the cold frame until the growth begins. When the shoots are three inches high, place them in the glasshouse. Bulbs which have been retarded may be planted at any time, and should be placed in the glasshouse at once.

Cultivation.

The great secret with lily bulbs is drainage. If this is properly secured the rest is easy. Lilies like a rich soil. To make a poor soil right for lilies, get a little well-rotted stable manure, the older the better. Throw into this some good bone dust, and mix the manure with good loam and leaf mould. All these are easily procurable, and for a few pots a wheelbarrowful should be ample. The leaf mould from oaks is

The long trumpet-like flowers of Lilium Longifolium make glad the heart of the gardener during June and July.

Madonna lilies and sweet william, as grown in the perennial border of Mrs. Laura Rose Stephen, Huntingdon, Que.

the best. Avoid that which is very rotten and soil-like. Choose that which is light and flaky. The best loam is the upper three inches of turf from an old pasture.

In preparing the compost tear the loam into small pieces with the hands. Rub the leaf mould and manure through the sieve. Spread it out on the ground and sprinkle with boiling water to kill grubs and other pests.

Having secured some suitable pots, place one large piece of broken crockery over the drainage hole, then three or four slightly smaller ones, then a layer of small ones on top. Cover the crocks with rough soil siftings or moss. This prevents the soil washing down into the drainage and stopping the exit. Particular attention must be given to this part of the operation. I have referred to the fact that speciosum is one of the lilies producing two sets of roots. In potting bulbs of this lily, therefore, the pot must be only half filled with the compost, only so much compost (about two inches), therefore, must be placed over the crocks as will half fill the pot. Having so filled the pot that the top of the bulb will be five inches from the surface, place a handful of sand about the centre over the compost and plant the lily on the sand. Place a little more sand around the sides of the bulb, adding enough compost to surround the bulb nearly to the apex. The bulbs of speciosum must not be covered more than this until the growth is six inches high. When the lily has attained that height, fill up the pot with compost for the stem-roots to feed upon.

When planting candidum remember that it is an exception to the rule as regards depth of planting. The bulb must not be planted deeper than three inches. Hints on planting this bulb have already been given and need not be repeated.

In planting bulbs in a border, dig a hole large enough to contain a shovelful of sand or gravel at the bottom and place over this several inches of compost of the kind mentioned. Surround the bulbs in the same way with sand. If planting a single bulb, a large enough hole can be made with a trowel. On no account omit the sand, as this affords the bulbs proper drainage. Newly planted bulbs require a little water given once a week.

October is the best month for planting most of the lilies, but candidum should be planted in September. Lilies like partial shade.

Once planted the bulbs need not be disturbed and each year will become more valuable through the increasing spikes. The stock, too, will increase by saving the small bulbs or "offsets" which form alongside the parent bulb every year. These can be planted out in the flower border.

When the first frosts appear, cover the ground all about the spot where the bulbs are to the depth of a foot with a mulching of dead leaves. A little soil sprinkled over these, or a piece of wire netting, will keep them in position. In spring these can gradually be removed. When all have been removed a little old manure may be dug in, taking care not to injure the bulb.

When the plant has finished flowering, and the stems have commenced to wither, cut them off a few inches above the ground.

Hints on Transplanting

E. P. Smart, Brockville, Ont.

AFTER these forty years of labor among plants and flowers, it would be a remarkable thing if I had not made some discoveries as to methods of planting and transplanting. I do not say, original discoveries, as no doubt other gardeners, from Adam down, have made similar discoveries.

The most unorthodox things (according to the books on gardening) have been done in my garden with the most extraordinarily successful results, but the one point I would impress on all amateur gardeners and experimenters in gardening processes, is the imperative need of carefulness in planting and transplanting. The finest roots or bulbs carelessly or hurriedly planted will never give the best results. With care and some knowledge of the requirements and nature of roots, one can transplant successfully at any time during the growing season. Even rose bushes carefully lifted and transplanted after flowering, may be made to thrive in an astonishing way—but only as the result of care. In the case of roses this is seldom advisable or necessary, but I mention it as an example of what can be done and what has been done when the need arose.

My invariable method of transplanting roots, whether of annuals or perennials, is, first of all, to have the ground well dug and mellow. I then make in the soft earth a hole deep enough to allow the tips of the roots to be placed in their natural position. This is next partly filled with earth and watered liberally, even lavishly. When the water is quite absorbed I fill up with earth above the level of the ground and press the earth firmly down around the stem of the plant with the trowel or hand. This latter is of great importance. In the case of larger roots tramping with the foot is the best method. This makes the plant firm and upright and prevents the air penetrating the earth and drying up the tender roots before they have got established. No watering on the surface is needed for a week or more—perhaps never.

Paeonies have been transplanted in this way from one part of my garden to another, and have flowered profusely the following spring, much to my surprise, as they are among that class of plants which deeply resent being disturbed. As to bulbs, lilies and other kinds, a long experience has shown that after the period of bloom is over and while the plant is in a decadent state, and later on in its dormant condition, nothing must be allowed to grow over the ground or even to shade it from the sunlight, else the bulbs deteriorate and the blossoms of the next year will be inferior, both in size and number, and if such conditions continue, the bulbs eventually die. This is often the reason why amateur gardeners fail with lilies of various kinds; also, with the handsome Crown Imperials which bloom in the early spring and are so liable to be overgrown later on. While speaking of bulbs, emphasis must be laid on the importance of deeper planting than usually prevails. Bulbs have a tendency to come towards the surface of the ground, consequently deep planting is necessary.

The autumn season is par excellence the time of all others for the trans-

planting of perennials and the smaller shrubs and vines, but the mistake of delaying the work of transplanting till so late in the season that growth, even underground, has practically ceased, is the cause of a good deal of trouble and disappointment. As early as possible in September is the best time to plant, as growth is still going on with great vigor both above and below ground.

While spring planting of roses is certainly most favored, I have found that bushes transplanted in late August or early September do excellently the following year; but in doing this, as in all else connected with the work of planting, I would reiterate and emphasize what I have said before: Carefulness, great carefulness in planting is the road to successful gardening.

Simple Facts About the Growing of Bulbs*

By Dr. H. M. Speechly, Pilot Mound, Man.

THERE are two ways of growing bulbs: you may either grow them out in the open garden, or cultivate them in your own homes through the winter months. As greenhouses are few and far between, I do not propose to consider greenhouse methods. My object now is to be useful to ordinary householders, whether in or out of the city. Only a few bulbs are suitable for the open garden in Manitoba, compared with those grown in Great Britain and Europe. Fortunately, these few are not well adapted for indoor use. Hardy bulbs do not take kindly to our dry, dust-laden furnace or stove-heated indoor conditions. Please be quite clear on what we mean by bulbs. I shall not talk about iris roots, which are rhizomes as a rule, sometimes tubers; nor of dahlias, which aretubers; nor of gladiolus, which is a corm. A bulb is an infant plant wrapped around with swaddling scales of greater or less thickness, such as an onion, a hyacinth, a narcissus, or a lily.

Planting Conditions.

A little judicious mixing of good sand with the heavy loams makes an admirable bulb bed. Bulbs dislike two things in particular, a water-logged soil and contact with manure. A well-worked bed has its manure finely divided and properly mixed long before the bulbs are planted, so that the latter danger is avoided. Now, we want to know when to plant bulbs in the open garden. All hardy true bulbs should be planted in the fall, if possible between September 15 and October 15—the earlier the better. Unfortunately, dealers get their supplies from Europe so late that we do not get our bulbs till October. This is a pity, in view of the simple fact that the longer a bulb stays out of the soil in the fall, the less satisfactory is the flower.

The Different Bulbs.

Taking the individual bulbs in the order of their blooming in the open garden, first comes the hardy little squill, showing its cheerful blue bells near May 1st. Plant its purple bulb about four inches deep, either in a prepared bed or in your lawn beneath the sod. The tulip is our best hardy spring bulb, because it supplies brilliant beauty at a much-needed time of the year. I share at last some of the poet's enthusiasm, who declares:

"Not one of Flora's brilliant race
A form more perfect can display;
Art could not feign more simple grace,
Nor Nature take a line away."

I like to treat my tulips like perennials, and therefore put them down for about three years without disturbance. Some of my tulips have bloomed well in the same spot for seven or eight years. A well-selected planting of tulips will serve you well so long as you are not too exacting, because, of course, the earliest Due Van Tholls tend to offset their bulbs very rapidly, and so go off flowering after the second season. Either your friends or any good catalogue will tell you how to select the early, middling early, and late bulbs in such a way that, except in very dry seasons, you can have them blooming for five or six weeks through the latter half of May and the month of June.

Tulips are planted as early in October as possible in two ways, either formally in complete beds suitable really only for parks and public places, or informally in clumps in front of or amongst the front ranks of a perennial border. The latter is the more attractive, especially for private gardens, because amid the rising green foliage of other plants the tulip loses whatever may be glaring in its brilliant colors. When you are ready for planting, rake off the soil to the depth of six inches. If you are particular, put an inch of sand on this bottom, but it is not necessary. Press your bulbs firmly on to this bottom, pointed end upwards, about four inches apart; then cast back the top soil carefully over the bulbs. They thus are ready to lie buried and frozen tight all the winter through. Of course they begin to root before the frost reaches them. To protect them from the influence of hot April suns and severe night frosts, you can scatter over the soil four inches of horse manure, which, according to the season, may be removed at the latter end of April or in the first week of May.

The Glory of the Snow shows its beautiful blue and white petals quite late in May, and should be planted in the fall like the blue squill, either in a bed or in sod, each bulb being four inches below the surface and about two inches apart. Squills and Glory of the Snow should be scattered thickly in the forefront of a bed, being only four or five inches in height. Lilies should be planted further back, because of their superior height.

Every good gardener thinks a year or so ahead, and amongst other things has ready for fall use a heap of clean sand, a heap of well-rotted sods, and a heap of charcoal. The charcoal can easily be got from the burning of rubbish heaps. Thus, when fall planting in the garden or potting bulbs in the fall, everything is ready for these purposes.

This illustration shows the results of judicious planting at a boulevard corner, there being no obstruction to sight, and therefore little danger of collision. (Photo by H. J. Moore.)

* Extract from an address delivered before the women's section of the Manitoba Horticultural and Forestry Association.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated The Canadian Bee Journal.
Published by The Horticultural Publishing Company, Limited,

PETERBORO, ONTARIO

H. BRONSON COWAN, Managing Director.

The Only Magazines in Their Field in the Dominion

Official Organs of the Ontario and Quebec Fruit Growers' Associations and of the Ontario, Manitoba and New Brunswick Beekeepers' Associations.

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1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests. The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, and of The Canadian Horticulturist and Beekeeper, $1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising rates, $1.40 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December 1915. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 13,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1915	11,158	August, 1915	10,294
February, 1915	10,842	September, 1915	10,057
March, 1915	10,864	October, 1915	10,017
April, 1915	10,917	November, 1915	9,704
May, 1915	10,827	December, 1915	9,253
June, 1915	10,329		
July, 1915	10,448	Total	124,920

Average each issue in 1907 6,627
Average each issue in 1915 10,410

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not apply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honorable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed

THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

A Venture in Co-operation

The announcement made elsewhere in this issue regarding the arrangement entered into between the Cooperative Fruit Growers' of Ontario, Ltd., and the Grain Growers' Grain Co., of Winnipeg, for the purchase by the latter of the Ontario Company's full pack of apples this year, has many features of unusual interest. The results of the experiment will be followed closely by all connected with the fruit trade in Canada.

A distinct measure of success has attended the efforts of numerous groups of local fruit growers in Ontario to cooperate in marketing their crops. For some ten years now a number of these local associations have extended this line of work by further cooperating through a central organization, known as the Cooperative Fruit Growers' of Ontario, Ltd., in the sale of their joint output. At this point, hitherto, cooperation in Ontario, and we might add in the west, has reached its limit, as for years the situation in the prairie markets each fall has been most discouraging to those interested in the promotion of cooperative methods. Representatives of cooperative associations, not only in Ontario, Nova Scotia, and British Columbia, but also of numerous small associations in Ontario, often have competed unscrupulously with one another and the dealers for the western trade. Thus prices have been cut to a degree that has reacted injuriously on the trade.

In the general scramble to make sales that has characterized the situation each fall hitherto certain local associations have shown a tendency to refrain from quoting prices until the large central association had established its price. They would then endeavor to gain trade by cutting under it. In the same way local organizations of grain growers in the west, knowing that this condition would exist, have shown a tendency to refrain from pooling their orders, so that they might buy separately from the small local fruit growers' associations, who they felt sure would be willing to cut prices.

The Grain Growers' Grain Co. is the largest cooperative organization of farmers in the west. The Central Fruit Growers' organization in Ontario has been the leading fruit organization in this province. The conditions described have made it difficult for both organizations to negotiate to the best advantage. By the new arrangement new conditions will prevail. It will be necessary for them to set a definite price early in the season. The Ontario organization has found an outlet for all of its fruit. The western company knows that it will have to pay only a fair price for that fruit. Thus the arrangement should work out to the advantage of both.

If the fruit shipped by the Ontario fruit growers is up to grade, it would seem as though this arrangement has an excellent prospect of being renewed year by year. As the Ontario fruit growers are keenly alive to the importance of sending nothing but properly graded fruit to the west and have succeeded in making arrangements with Dominion Fruit Commissioner D. Johnson to have their fruit given extra attention by the Dominion fruit inspectors, it would seem as though this point has been well safeguarded. The effect on the western trade of the new arrangement will be considerable. As the effort has carried to its logical conclusion the principles of cooperation, which involve as far as possible, direct sale from the producer to the consumer, it is to be hoped that it will prove a success.

Forming New Societies

The fall is the best time to organize a horticultural society. The Horticultural Societies' Act for Ontario requires that the first meeting for organization purposes shall be held between the eighth and fourteenth of January. If not formed at that time it is impossible to form a society for another year. The reason for this is that the grants to horticultural societies are arranged during the first part of the year. Societies which fail to make their reports in time to be included in the annual grant must of necessity wait for another year.

The Act provides that a horticultural society may be organized in any city, town or incorporated village or a police village, having a population of not less than five hundred. The method of organization is simple. By writing to Mr. J. Lockie Wilson, superintendent of horticultural societies for Ontario, Parliament Buildings, Toronto, copies of the Act and the necessary application forms may be obtained free of cost. Those desiring to form a society are required to secure a list of people willing to pay in $1.00 each as membership fee. This list must be sent to the government. At the specified time in January a meeting for organization purposes must be held. After organization, a report of the proceedings with the necessary forms has to be sent to the government.

The grant to horticultural societies is distributed, one-third in proportion to the total number of members of each society and two-thirds in proportion to the total amount expended for horticultural purposes during the preceding year. New societies the first year receive a grant at the rate of one dollar for each paid up member on the first day of July. It is specified that the first grant shall not exceed seventy-five dollars. By discussing this matter during the next few weeks in their local papers and otherwise a number of towns and villages in Ontario now without horticultural societies would find it easy to organize one. Much benefit would result to the municipalities as well as to all who might join the societies.

Western Farmers Retaliate

Leaders in the farmers' movement in the prairie provinces state that the action of the fruit growers of British Columbia, in pressing for the increase of forty cents a barrel in the tariff on apples that was granted at the last session of Parliament, influenced them materially in their negotiations, recently completed, for the purchase of their supplies of apples this year from the fruit growers of Ontario. Owing to the overplanting of fruit in the Pacific coast states and the conditions brought about thereby, British Columbia fruit growers have felt the need for such an increase more than Eastern growers, who were situated nearer to the large consuming centres. They therefore took a prominent part in urging the Government to grant it. The Grain Growers resented this action on the part of the western fruit growers, because they realized that any increase in the tariff was likely to make their fruit cost them more. They contended that the lot of the homesteader on the prairies was equally as hard as that of the fruit grower in the mountains. At a conference of those interested in the fruit trade, held in Calgary about a year ago, Mr.

J. B. Musselman, Secretary of the Saskatchewan Grain Growers' Association, voiced the objections of the grain growers to any increase in the tariff, and succeeded in considerably influencing the discussions at the conference.

When it became known that the fruit growers had succeeded in obtaining an increase in the tariff on apples, the resentment of the grain growers was expressed in the form of a resolution passed at a meeting of the Canadian Council of Agriculture, held in Winnipeg. This resolution declared that the increase in the duty from forty to ninety cents a barrel was "an unrighteous attempt to exploit the prairie farm for the benefit of British Columbia fruit-land speculators, fruit growers and middlemen," and advised the farmers of Alberta, Saskatchewan and Manitoba that if they were to be taxed in this manner they should pay these taxes into the federal treasury by purchasing imported apples, rather than the same duty, together with profit thereon, to British Columbia speculators, fruit growers and middlemen.

While the resentment of the prairie farmers is likely to pass away as they become accustomed to the new conditions, it has had an effect in leading them to purchase this year's supply at least in Ontario. If the Ontario growers supply a satisfactory pack of apples, and the arrangement entered into with the grain growers works out to the advantage of both orgaflizations, the effect may prove more lasting than it otherwise would. Not often is the effect of the tariff in helping one class of the community—as it should help the British Columbia growers this year—at the expense of another so clearly apparent as it is in this case, nor are the consumers in a position to show their resentment as the grain growers have done. The close proximity of British Columbia to Alberta gives the British Columbia growers an advantage in that field which even the resentment of the grain growers is not likely to offset. The situation is an interesting one that will be remembered in the future should the tariff on fruit again become a matter for public consideration.

The Home Beautiful

There is nothing that adds more to the enjoyment of the inmates than well-kept grounds. If you have not a thickly-carpeted bit of lawn, you are missing something out of life. So get busy now and prepare for a lawn next summer. The seeding may be done either the last thing before winter or early next spring, but at any rate preparation must be made this autumn. If you have a lawn furnish it. Shrubs and flowers are just as necessary to grounds as chairs and tables are to a house.

Most of the best gardens had humble beginnings. While most of us cannot keep a park about our places, we can all afford some improvement. As the plants grow, so will our experience in tending them and our interest in them. Rome was not built in a day. Neither were the beautiful grounds we sometimes see made beautiful in a year. But we must make a start, and now is the time for those who have not already done so.

For the city man, gardening will furnish just the outdoor exercise and the relaxation from business worry that may be needed. By taking up a little gardening in our spare time our homes become an asset to the city, for beautification will not be confined to our grounds, but will spread to those of our neighbors. Work with flowers develops the finer side of one's nature and gives broader sympathies.

SOCIETY NOTES

Guelph

This society has been active during the past season, with a membership about the same as last year. Our main work has been the holding of competitions in several wards of the city, as well as a vegetable competition for the whole city. Last spring we distributed shrubs, roses, flower plants, gladioli, as well as seeds of flowers and vegetables. Our fall distribution of roots and bulbs will shortly be made.

The society regrets the loss of their Secretary, Mr. J. E. Brittain, of the O.A.C. Mr. Brittain has secured a good position under the Provincial Government of British Columbia. During his two years with us, Mr. Brittain has fulfilled his duties as secretary in a very efficient manner, gaining the goodwill of all with whom he came in contact. The good wishes of the Guelph Horticultural Society and of citizens of Guelph in general go with him. A meeting will be held shortly for the election of a new secretary.

Hamilton

Our membership is steadily increasing, though not with the rapidity that other than war year would show. Besides a visit in May to Dr. Clark's splendid tulip garden at Grimsby, Ont., and the weekly visit throughout June to the Alexander garden—a place well known to more than the flower lovers of this city—this season found a number of owners of ordinary city-lot gardens open for visiting. The results of these arranged visits are far-reaching. In every case there was something to be learned, as each owner showed marked individuality, and revealed to the visitors what can be accomplished in the limited space available. Some fourteen or fifteen gardens were thus visited. Announcements were made in the local papers as to the evening on which the visits were to be made. From messages received from members, this plan was greatly appreciated, and will be developed to a greater extent next year.

Owing to the weather conditions which existed this summer, it was decided to withdraw the proposed autumn meeting. This was to have been held at "Lakehurst Villa," Port Nelson, the lovely home of Mr. W. D. Flatt. This event will be one of the pleasant features for next year.

All the other lines of work undertaken are suceeeding as well as conditions prevailing permit. The Boy Scout garden competition was cancelled in order that the boys might go out as fruit pickers, and thus secure fruit for the soldiers. The Boy Scout garden work will be undertaken next year as planned, instead of this. The boys will gain their gardeners' badges in this way.—Secy.

St. Catharines Exhibition

AFTER a lapse of three years the St. Catharines Horticultural Society resumed this year its annual horticultural exhibition in September. The dates were September 12-13. It proved very successful and, as usual, was held in the Armory. It was largely attended and the quality and appearance of both the flowers and fruits displayed were first class. The exhibit of fruit was much superior to that shown in Toronto.

The display of asters, roses and gladioli was very good. The decorated dining tables were also an attractive feature. Queen Victoria Park, Niagara Falls, had a beautiful display of potted plants, palms, ferns and other plants. Hybrid tea roses were another special feature. The flowers were auctioned off and the proceeds given to the Red Cross Society.

Mr. Wm. Hunt, of Guelph, has acted as judge this season at various horticultural shows. He visited Owen Sound, Fergus, Elmira and other places. The dry season has had a detrimental effect on all horticultural exhibits. Dahlias, asters and sweet peas have felt the effects of the extreme hot weather. At many shows there were very few sweet peas, and dahlias were generally conspicuous by their absence. Collections also of hardy perennials as a rule were very meagre. Otherwise the societies evinced more than the usual interest in their different lines of work.

I am greatly pleased with The Canadian Horticulturist. I get a lot of information from it in regard to orchard work, as I am a fruit grower, and appreciate it very much.—J. M. Kelly, Armitage, Ont.

A flower bed planted at a street corner by the Windsor Horticultural Society. This line of work has been conducted with much success by a number of Ontario societies.

A Forward Step in Co-operative Marketing

AGRICULTURAL cooperation passed another milestone in its progress when arrangements were made this season by which the apples of the Ontario fruit growers affiliated with the Cooperative Fruit Growers of Ontario, Limited, were sold directly to the consumers in the prairie provinces. This has been made possible by an agreement between the Cooperative Fruit Growers of Ontario, Limited, representing the growers, and the Grain Growers' Grain Co., who represent their farmer patrons, the consumers. The details of the arrangement entered into between these two important organizations were explained to The Canadian Horticulturist recently by Mr. Elmer Lick, of Oshawa, the President of the Ontario Association.

"At first sight," said Mr. Lick, "it seemed an impossible task to bring these two associations together. On one hand was the Fruit Growers' Association, whose aim was to market the fruit of its members at the highest possible price. On the other hand was the Grain Growers' Grain Co., which aimed to buy fruit for its patrons at the minimum price. Thus, to begin with, the aims of these associations were radically opposite. The keystone which finally bound them together was arbitration.

Years of Work Rewarded.

"The bringing of these associations together represents several years' work. The basis arrived at is this: The middleman has received on an average one dollar a barrel for handling the fruit. The ideal working of the new plan will give fifteen cents commission to each of the associations, and the remaining seventy cents a barrel will be divided, giving the grower thirty-five cents extra profit per barrel for his fruit, and selling this fruit to the consumer at thirty-five cents a barrel less than he would otherwise pay. Of course there will be the problem of fixing prices, but this will be worked out by an arbitration board, which will take into consideration the cost of production, etc., in setting prices.

"It looks now," said Mr. Lick, "as if all the apples we can get will be needed for the prairie provinces under this plan. We are not using the economy crate at all. The Grain Growers want all fruit packed in barrels.

Special No. 3.

"A noteworthy feature is the formation of a No. 3 special grade, to be known as Consumers' Brand. This grade will contain large, well-colored fruit, albeit scabbed,, and will provide a market for good fruit which would otherwise be unavailable."

Terms of the Agreement.

The terms of the agreement between the two organizations, as set forth in a letter from the Grain Growers' Grain Co. to the Cooperative Fruit Growers of Ontario, Limited, and confirmed by them, as as follows:

"The apples which you are to ship us will be classed as follows:

"Class A:- Spies, Kings, Snows and McIntosh Reds.

"Class B: Baldwins, Golden Russets, Greenings, Wagners, Blenheim Pippins, Spitz, Baxter, Starks, Ontario, Seeks, Canada Reds, No. 1 Talman Sweets, Roxburg.

"Class C: Bellefleur, Pewaukee, Mann, Ribston, Phoenix, Fellawater, Hubbardston, and kindred varieties of good winter apples.

"The approximate percentages of the various classes and grades to be shipped are according to the following table, and at the price set forth:

	Grades.	25% Class A.	50% Class B.	25% Class C.
* 10%	No. 1.....	$5.00	$3.25	$2.75
	No. 2	3.25	2.25	2.00
	Spec. No. 3	3.25	2.25	2.00

"The above prices are f.o.b., Class A rates, Ontario points.

"The No. 3 Special are to be a special brand put up by your company for our trade, and shall be as follows: Over 2½ inches in diameter, free from worms, and of good color for the variety, with defects that are not likely to cause material waste. To be known as Consumers' Brand. Higher than domestic grade.

"You are to invoice us at these prices, plus 15c per barrel, and we will undertake to remit to you each calendar week 75% of the value of all invoices received within the week. The remaining 25% is to be held by us until the business is finally cleaned up and all adjustments made for loss in shipment, poor quality, damage in transit, etc. We will use our best offices to assist you in handling claims against the railway companies, and will endeavor to have the deal finally closed out by the end of the present year.

"Your company undertakes that these apples shall arrive at destination in good condition.

"The prices set forth in the foregoing table are tentative, and made as a basis for knowing approximately the prices which we will have to name to the consumer. The final price will be fixed about October 1st, and must not exceed 25c per barrel over or under prices before named, in the absence of exceptional circumstances.

"Details in regard to shipment to flag stations, in order to hold the railways responsible, will be worked out on a basis mutually satisfactory.

"Should differences of opinion arise in regard to final prices, claims, etc., a committee will be appointed as outlined in draft of memorandum of proposed agreement submitted to us by your company."

*While this is an approximately standard [illegible] there will be wide variations this year.

The Fruit Display at the Canadian National Exhibition

THE fruit exhibit at the Canadian National Sept. 5-9, was most attractive to visitors owing to the better arrangement of the exhibits, and to the artistic effects attained in the four large miscellaneous displays of fruit. The prize for fruit displays was a new feature, and can hardly be too highly commended. It gave to the visitors some idea of the variety of the fruits which are being successfully grown in Ontario. The displays of fruit each covered an area of 124 square feet.

It was not an easy matter to arrange them in the attractive manner in which they were exhibited this year. The exhibits were well worthy of the prizes, which were awarded as follows: 1st, Dalhousie Farm, Port Dalhousie; 2nd, W. G. Farminger, St. Catharines; 3rd, Wm. Armstrong, Niagara-on-the Lake; 4th, W. H. Bunting, St. Catharines.

The quantity of fruit shown this year in the general exhibits was not so large as a year ago, owing to the peculiar season, which seems to have delayed the entire fruit crop from ten days to two weeks. Thus some of the fruit was rather immature for exhibition purposes.

Fortunately the prolonged dry season did not have a baneful effect on all fruits. While apples and grapes had been retarded in their growth, and had not the quality of fruit grown last year, the quality of plums, peaches and pears was unusually high.

The commercial packages of fruit were judged by Messrs. P. J. Carey, Dominion Fruit Inspector, Toronto, and W. G. Smith, Burlington. Prof. J. W. Crow, O.A.C., Guelph, judged the single plates of apples and pears. Mr. C. Secord was judge of the peaches: and Messrs. E. F. Palmer and L. R. Jones, of Vineland Horticultural Station, were in charge of grapes, plums and collections of fruit.

Prominent among the exhibitors in apples were W. E. Weese, of Carrying Place, Ont.: Robt. Cameron, W. H. Bunting and W. J. Farminger, of St. Catharines, Ont., and C. W. Marshall, of Hamilton, Ont.

Plums and peaches were much better this year than usual in quality, but, owing to the fact that many of the late varieties were not yet mature, the quantity was not as large as last year. "A very nice lot," was the opinion of the judge. The chief exhibitors in plums and peaches were: Messrs. R. Cameron, W. J. Farminger and W. H. Bunting. The crop of peaches this year varies from 30% to 60% of a full crop, according to variety and district.

The best pears came from Prince Edward County. They were exhibited by W. E. Weese and Pemberton Peck, who stated that their crops were good but light. They naturally were elated over their winning from growers more favorably situated climatically.

There was a larger display of grapes than last year, but the quality was not up to the standard, as most grapes were immature. Mr. Haynes, of Lincoln County, who was successful in carrying off the lion's share of the honors, stated that only once in twenty years had his grapes been so green at that time of the year.

In the Government Building there were two very attractive fruit exhibits provided. The Ontario Fruit Branch exhibit provoked much favorable comment on the arrangement of their fruit. In the exhibits put up by this branch the aim was to make an attractive mass display of the various fruits grown throughout the province. The fruit was obtained from the branch's demonstration orchards and the best individual growers in the Niagara district.

The Horticultural Experiment Station of Vineland, Ont., had an exhibit of fruit in boxes, showing careful packing. The exhibit put up by the station was more of an educational character than the fruit branch display. A mass display wasn't the object. Instead it was to disseminate knowledge concerning varieties of fruit, vegetables and cultural methods. Hence many of the standard, as well as new and promising varieties which were ripe, were shown at Toronto. All this fruit was grown on the station grounds.

The varieties shown were: the St. John peach, the America, Shiro and Bradshaw plums, the Bartlett pear, and the Duchess and Alexander apples. An exhibit of grapes on plates was also provided. A special feature was the display of strawberry and peach jam and canned peaches.

CIDER APPLES WANTED

We are prepared to pay the highest cash prices for cider apples in car lots. Farmers who have not sufficient to make up a whole car themselves can arrange with their neighbors for joint shipment. Write us if you have any to offer.

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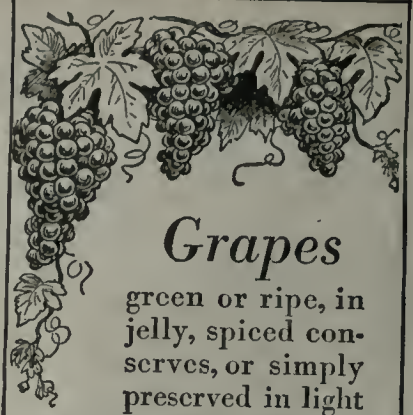
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Okanagan Valley Notes

The season of 1916 will be a satisfactory one on the whole for the growers of the Okanagan. This is the case despite the fact that last winter was the most severe for about twenty-five years, even the great expanse of Okanagan Lake freezing over solid at the southern end, and remaining so for six weeks. There were predictions at that time that the fruit crop would suffer severely from the continued low temperatures, but it is now clear that the aggregate shipment of fruit and vegetables will be no less than last year, that is, well over three thousand cars. All soft fruits have been light, especially in the southern end of the Valley. From various causes these fruits have measured up more than fifty cars short of the 1915 total, not over two hundred cars being shipped this year. Nevertheless, the increase in apples alone will more than make up for this shortage.

The Valley over, apples will aggregate about 1,200 cars. The Okanagan apple output grows every year, there being new orchard areas coming into the bearing stage every season. The greatest increase will show itself in the winter varieties, the policy in regard to later planted areas having been to set out few varieties, and those the best, which means heavy straight variety production in a few years. Trees which have died out, or winter killed, or peach trees which have been pulled out, are being constantly replaced with the standard varieties of winter apples, and the wisdom of this policy becomes more apparent every season. What a detriment the multiplicity of varieties has been to the Valley can be judged from the fact that the Okanagan United Growers, the co-operative concern which handles approximately two-thirds of the output of the Valley, lists no less than one hundred and thirty odd varieties of apples, which are classified according to their qualities.

Prices up to now have been good. Short crops on the soft fruits kept the prices up, and the demand could not be met. Cherries, which promised well at first, afterwards suffered great shrinkage from rain at the picking time, causing much split fruit. Nevertheless, the fruit that was shipped brought very satisfactory returns. Apricots also were short. Fifty dollars to sixty dollars at the packing houses was a common price. One case has been heard of where a grower who ships out direct to a number of prairie customers was offering from $80 to $85 per ton for apricots to fill his orders, and could not obtain them at that. The demand for British Columbia apricots is increasing every year, especially for the standard preserving kinds. Peaches, while not bringing such a good price as apricots, have proved profitable to the men that have a good proportion of No. 1 fruit. Peaches in the past have not been a profitable crop in the Okanagan, but now as the marketing methods are becoming more rational, the returns are better. In the meantime, many orchards have become run down, and are not now producing the proportion of No. 1 stuff they should. There has been some difficulty in keeping the grades up to standard, particularly as to size, but the government inspectors have been on to their jobs, forcing growers to keep the pack up to what it should be. The No. 1 peaches have gone out very largely on the twenty-pound crate, but for the No. 2 stuff an innovation has been tried by packing into open lug boxes, unwrapped, giving a package containing about twenty-five pounds of fruit. It is understood that the new package has not been kindly received in all quarters, but it

is a cheaper package, which means a higher net return out of the gross selling price for the grower.

With pears retailing at a price equivalent to about $75 a ton and upwards, there is a good return for those who have this fruit in quantity, but they are not many. The demand promises to be strong, but the supply is weak. Unattached apple growers were not in any hurry to sign up contracts this season, because most of them had several offers to choose from. No. 1's are priced at about two cents a pound at the packing houses. At least one shipping firm of some consequence in the Okanagan has not been able to locate a sufficient supply in the Valley, and purchased an additional twelve or fifteen cars from the Grand Forks country to the east.

Close upon a hundred cars of crab apples will be marketed this year, mostly in the Canadian west, where they are prime favorites with the housekeepers for jelly making, excepting the unfortunate Florence variety, with which some shippers will have nothing to do. By a peculiar anomaly no less than about a score of cars of Okanagan crabs have been sent to American points in the middle northern States, North and South Dakota, Illinois and Iowa points mainly. This is like shipping coals to Newcastle, and is a compliment to the energetic selling methods of Okanagan firms.

By-products are receiving well-merited attention at some points in the Valley. The Dominion Canners' plant at Vernon is in the market for more tomatoes and other canning stuff than it has been able to get, and the same is true also of the plants at Kelowna and Penticton. Then there are three fruit and vegetable evaporating factories going this season, at Kelowna, Vernon, and a third further north in the heart

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Single and Double Tulips, all colors, per doz. 15c., 20c., 25c., and 40c. If required by mail add 15c. per doz.

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AT three-fifteen the call boy comes, to wake the railroad man. Big Ben was on the job *first.* He started the day at *three.*

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Big Ben is six times factory tested. At your dealer's, $2.50 in the States, $3.00 in Canada. Sent prepaid on receipt of price if your dealer doesn't stock him.

Westclox folk build more than three million alarms a year—and build them well. All wheels are assembled by a special process—patented, of course. Result—accuracy, less friction, long life.

La Salle, Ill., U. S. A. **Western Clock Co.** Makers of *Westclox*

Other Westclox: Baby Ben, Pocket Ben, America, Bingo, Sleep-Meter, Lookout and Ironclad.

of the vegetable district. This year the B. C. Vinegar and Cider Company of Vancouver has taken up business in the Okanagan, and has been making vinegar and cider in large quantities, thus taking care of a class of apples that would probably otherwise have been a dead loss on the hands of growers.

The first mechanical apple grader has been working this season in the packing house of the Vernon Fruit Union. It has been brought to perfection by a Yakima fruit man, and with its aid a perfect grading of apples according to size and weight is possible. It is said to be cutting down the cost of packing apples as much as five cents a box.

In the year 1910 the output of fruit, vegetables, etc., from the Okanagan was about 950 cars. This year it will be close upon four times that number. More than 70% of the entire fruit output of British Columbia is now grown in Okanagan orchards.

Whether it is because the proper material is not available for its manufacture, or whatever the reason may be, it is generally conceded that the introduction of the Ontario basket into the Okanagan is not the unqualified success it was hoped for. Its use in this Valley is not extensive yet, and it is not likely ever to become so.

Fruit Development in Durham County

"The work which we have been conducting among fruit growers of Durham County," said Mr. R. S. Duncan, B.S.A., District Representative at Port Hope, Ont., to an editor of The Canadian Horticulturist recently, "has been along three lines—educational, commercial and publicity. We have one association, the Northumberland and Durham Apple Growers' Association, whose aim is to boom the apple industry in these counties. This association holds meetings, and until the war broke out had been making exhibits at some of the large fairs to advertise their apples.

"Another line of educational work which has been carried on is the work of demonstration orchards. Four orchards were taken over, cultivated, cover cropped, sprayed and pruned. The fruit was picked and marketed for three years and complete records kept. By this means we proved the value of this county as an apple producing section. The results of this work have already been published by The Canadian Horticulturist. This was perhaps the beginning of commercial fruit growing in our counties. We still carry on spraying experiments. Demonstrations are given in different orchards in spraying and pruning trees.

"The commercial end of our propaganda deals mostly with the organization of co-operative fruit growers' associations. Since I have been here, three of these associations have been formed. These are the Durham Fruit Growers' Association, with headquarters at Port Hope; the North Darlington Association, with packing house at Tyrone, and the Association at Garden Hill. Besides this growers have organized an association at Bowmanville. These associations are for the cooperative marketing of apples and for the purchase of spray materials and other supplies used by the growers. Some of these associations have built their own fruit houses. The fruit house of the Durham Association is a large cement structure which cost $5,000.

"The worth of these associations to the fruit growers can be seen from the records of the Durham Association, which was organized in 1911. During the first three years of its operations it made extra profits to the

Queen of the Pinks.

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SOME of the choicest Novelty Hyacinths ever offered to Canadian flower lovers are listed in our new Catalogue of Quality Bulbs for Fall Planting. Many of these have been tested by ourselves, and we feel we can recommend them with the utmost confidence. **For full descriptions see our new Bulb Catalogue, mailed free on request.**

Admiral Courbet. Deep violet blue	Each 15c
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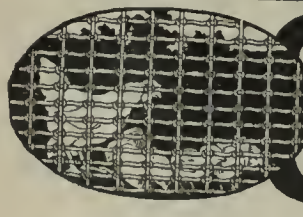

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growers of $10,939.30. This was estimated from the fact that it handled in those three years 18,233 barrels of apples, and those apples were sold at an average of sixty cents a barrel above the price received by growers who were not members of the association.

The same lines will be followed in the work of next year. Demonstrations will be given in spraying and pruning in districts where apple growing has not reached its highest development. Further development, therefore, may be expected.

Annapolis Valley Notes

Eunice Buchanan

Up to date, September 16th, no frost has damaged the crops, although we had a slight one on September 4th, and another on September 11th, which withered squash leaves in low places, also hurt some cranberries. The weather has been ideal for harvesting with no high winds to injure the fruit.

Insect pests have been unusually active. Young apple trees have been badly eaten by Red-humped Apple Tree Caterpillars (Schizura concinna) which feed gregariously. Some of the young trees are completely denuded of foliage. Spraying with paris green will control these caterpillars, but in small orchards they have been hand-picked. The huge green larvae of the Cecropia Emperor Moth (Platysamia cecropia) have also been busy on young apple trees, but as they work singly, or in twos, they are not numerous enough to do much damage.

A Serious Pest.

The average grower does not realize the seriousness of the Green Apple Bug. If the creature were as large as its scientific name there might be some easy way to control it, but it is so tiny that it often escapes observation. When I made its acquaintance I first noticed gnarled and deformed apples, then when turning over the leaves I noticed insects resembling aphis, only they moved very swiftly to a hiding place. In Annapolis county, where the orchards have a large proportion of the Nonpariel variety, the Apple Bug has increased to such an extent as to threaten, if not shortly checked, to wipe out this apple. For instance, in 1911 one grower in that county had 500 bbls., in 1912 the yield had dropped to 150, in 1913 there were 30 bbls, 1914 10 bbls., and in 1915 the harvest was only one and a half bbls. Orchardists are advocating banding the trees with "Tanglefoot" before spraying with "Black Leaf 40."

The Imported Cabbage Worm (Pieris rapae) and the Zebra Caterpillar (Ceramica picta) have been more numerous than usual.

The Halifax market this week expects to

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References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies.

INTERNATIONAL APPLE SHIPPERS ASSOCIATION

H. PETERS

88 Front St. East, Toronto

offer $3.50 for No. one Gravenstein apples, $2.50 for two's, and $2 for three's per bbl; last year they were selling for $4. Blenheims and Ribstons have gone across to England and are expected to bring good prices. Bough Sweets sold locally for $3. Ontarios and Dudleys are also being gathered. Japanese plums are scarce, common ones are netting 45c for 6-qt. baskets. Clapp's Favorite pears are $3 a bbl. With regard to barrels of fruit sent to Halifax, 70c should be deducted for expenses on each barrel.

Tomatoes brought 70c a basket, but are ripening slowly. Shipments came in from Ontario and glutted the market. Potatoes are being sold for $1.75 a bbl.

Slag, which was last year sold for $15 a ton, has now risen to $17.

A new organization has been formed in Berwick, called "The Nova Scotia Fruit Shipping Company." The head office is in rooms recently occupied by the United Fruit Companies of Nova Scotia, the latter having moved to the Morse Block. Messrs. F. A. Parker, S. B. Chute, A. E. Adams and T. C. Hall are the incorporators of the Nova Scotia Fruit Shipping Company.

Niagara District Notes

F. G. H. Pattison, Winona, Ont.

THE past month has been characterised by continued drought. On the night of Sept. 18th a severe frost swept over a large portion of the district around Hamilton, doing a lot of damage to tomatoes, melons, egg plants, cucumbers, green beans, peppers and corn. It also damaged severely the late potatoes. The Niagara district, however, escaped this frost almost entirely.

The drought and very warm weather towards the end of August seriously affected tomato and other vegetable crops. In the case of tomatoes a good deal of "scorching" and "cooking" took place. From a canner's point of view it is apparent that packs of fruit and vegetables will be light this season, and prices are likely to be firm for another year at least. Undoubtedly canners have had some trouble on account of the labor scarcity, the high price of tin plate and other materials. That is no excuse for trying to make the tomato-growers pay all the cost, by expecting growers to produce tomatoes at the utterly inadequate price of 25 cents per bushel. At the present price of labor, tomato plants, etc., there is nothing to be made by growing tomatoes at 25 cents, consequently most of the well-posted growers are refusing to do so. As the price of tomatoes is a small item as compared with the other expenses incurred in producing and placing canned tomatoes on the market, it seems a piece of folly on the part of the canners that they do not pay a better price to the growers, insuring them sufficient tomatoes to keep their plants running. Tomatoes have now stiffened up in price, however, and are bringing 30 to 35 cents a basket.

Heat also shortened the early cabbage, cauliflower, and potato crops, and materially lessened the raspberry crop. Early celery also was injured, developing in some cases rot in the heart. The melon crop on the whole has been good and of excellent quality.

Early apples were not of very good quality. Fall apples are better. Winter apples, on well-sprayed orchards, are clean but rather undersized. There is a fair sprinkling of Baldwins, Greenings, Spys and Russets. Anjou and Keiffer pears are a fairly good crop, but Duchess are generally light.

On Tuesday afternoon, Aug. 22, Prof. Caesar held a demonstration of the new dust spray machine at W. Geddes' orchard in North Grimsby. Very good results have been obtained by Prof. Caesar in using this new spray. He attributes his success to the fact that he used it in every case just at the right time. There never was a season when

IT PAYS TO SPRAY

Proper spraying yields big returns. Unsprayed fruit is liable to be a drug on the market. A good Spray Outfit will soon pay for itself and then goes on adding to your profits.

The MASSEY-HARRIS SPRAYER

has Double Cylinder Vertical Pump with Bronze Plungers—Tank is made of selected Cypress—the Agitator is operated from the top of the Tank—Front Wheels turn under the Frame—Cab protects the Engine—no Sprocket Chains or other "trappy" parts—Engine is Hopper cooled—runs in any weather and on the steepest side-hill.

Free Spray Catalogue will interest you—ask the nearest Massey-Harris agent or drop us a line.

Outfits for Hand or Power—on Skids or Wheels

MASSEY-HARRIS COMPANY, Limited

Head Office TORONTO

Canadian Branches at Montreal, Moncton, Winnipeg, Regina, Saskatoon, Swift Current, Yorkton, Calgary, Edmonton.

E. G. Prior & Co., Ltd., Victoria, Vancouver, Kamloops. AGENCIES EVERYWHERE.

the necessity of spraying apples carefully and often was more clearly manifested. Those growers in this district who gave the usual spraying and did their work thoroughly, have a fair to good crop, almost entirely free from scab. The others have at best a poor crop, and a number have no apples at all. The dormant and bud sprays seem both to have been of particular importance in preventing scab this season.

Early plums and pears were quite light and mostly of poor quality. With the Bradshaws, however, the quality greatly improved, and later varieties proved of excellent quality, although a light crop. At the present date (Sept. 21) the plum crop is nearly finished, some Reine Claudes, Grand Dukes, Monarchs and Damsons alone being left. Lombards were a light crop but of very good quality. These were largely bought up by the local jam and canning factories. The factories of this District made contracts this season for Lombard plums at prices varying from 20 to 35 cents per 11-quart basket. Late plums especially have been of good quality. Reine Claude, Grand Duke, Monarch and the various Damsons, are sold at from 60 to 70 cents a basket.

Whys and Wherefores of Fall Spraying

is the title of a little booklet, giving seven reasons, official and non-official, why it is the best time to spray. This booklet will be sent out by the B. G. Pratt Co., 50 Church St., New York, manufacturers of the well-known "SCALECIDE" at a very early date. If you are not on their mailing list, send them a postal today giving the number of your trees and your dealer's name and you will receive a copy free. Address Dept. 43.

Early peaches were a fair crop and brought good prices. Yellow St. Johns were also a fair crop but did not bring more than moderate prices. The fruit was somewhat undersized. Early Crawfords are nearly done now. Elbertas are just beginning to come on the market and are a pretty good crop. Later peaches are an excellent crop.

The grape crop is good and of excellent quality, but the berries are rather undersized on vineyards that have not been well cultivated. Grapes are likely to hold their price well and there is no need to hurry them to market.

The prizes for tender fruits at the Toronto Exhibition went, as usual, chiefly to the St. Catharines and Niagara growers. The fruit there was not as plentiful as usual, but was very creditable indeed in quality and appearance. Owing to the very unfavorable season the vegetable exhibit displayed in one of the wings of the Horticultural building was not up to its usual standard. The quantity was much less than usual and the quality was poor. I cannot remember the time when vegetable growers have had such a trying and disastrous season as this has been.

September 19th and 20th the annual show was held at Beamsville. The fruit display was a good one, peaches, grapes and plums predominating. There was a very fine special exhibit from the Experimental Station at Vineland. Roots and vegetables were not as good as usual with the exception of onions.

SANDER & SONS
ORCHID GROWERS
The Finest Stock in the World
Catalogue on Application
ST. ALBANS - ENGLAND

Vegetable Field Crop Competition

The Ontario Vegetable Growers' Field Crop Competition is similar to the Field Crop Competition in grains conducted by the superintendent of fall fairs. The crops are grown under field conditions, and the crops of each local vegetable growers' association are judged separately. All the competitors who win prizes must exhibit at the Canadian National, Ottawa, and London Fairs. Practically all of southern Ontario is represented in this competition. A few competitors are even in Quebec, belonging to the Ottawa Association.

On account of weather conditions this year, the celery for the most part was not up to the standard of former years. Tomatoes and onions were of very fair quality, and there were a large number of entries. The potatoes this year were small but of good quality.

It is noticed that the men who win the prizes from year to year are those who arrange their exhibits most attractively, having the products of the same size, color and shape. As much of the material has to be shipped many miles, care in packing is even more important than quality.

The winners in the different classes this year were:

Tomatoes: 1st, Chas. Aymer, Humber Bay; 2nd, C. H. Aymer, Humber Bay; 3rd, Edgar Worgan, Weston; 4th, W. R. Trott, London West; 5th, Thos. Delworth, Weston.

Celery: 1st, J. J. Davis, London; 2nd W. R. Trott, London; 3rd, John Harris & Son, Belleville, Ont.; 4th, C. E. Post, Brighton; 5th, R. H. Tier, Islington.

Potatoes: 1st, Chas. Aymer; 2nd, C. H. Aymer; 3rd, F. F. Reeves & Son, Humber Bay; 4th, C. W. Bycroft, London; 5th, N. Sanderson, London.

Onions: 1st, F. F. Reeves & Son; 2nd, Chas. Aymer, Humber Bay; 3rd, R. Dengate, Ealing; 4th, W. S. Eborall, Beamsville; 5th, John Harris & Son, Belleville.

Exhibit Your Products

Geo. Baldwin, F.R.H.S., Toronto, Ont.

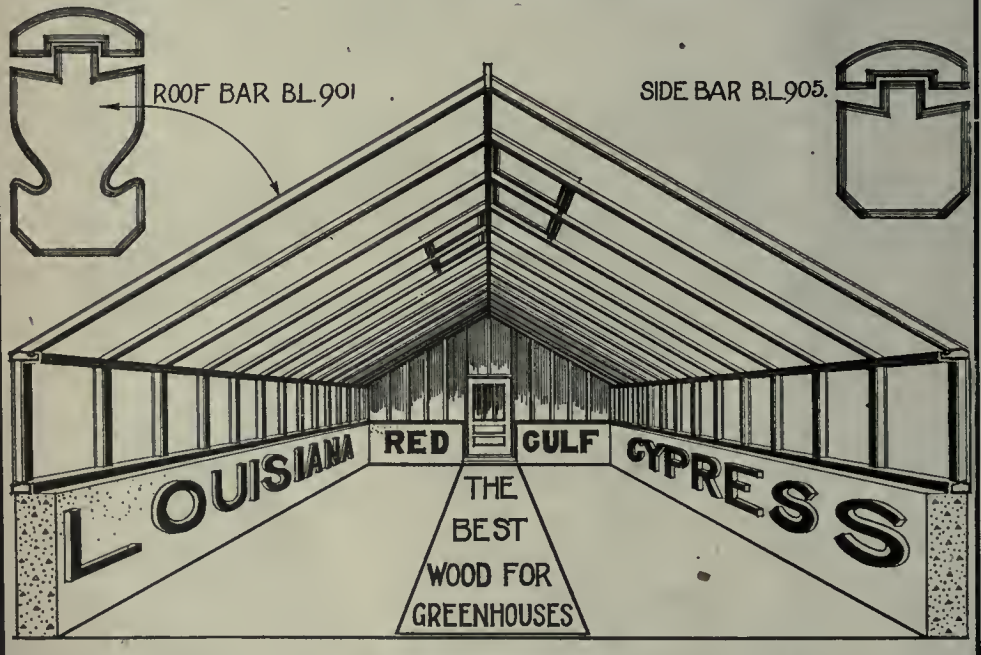
INTEREST is the first thing to be cultivated in the "home garden." There is no better means of cultivating this interest than by exhibiting your fruit, flowers, and vegetables at town or city horticultural society exhibitions or country fairs.

There are three reasons why exhibiting proves profitable: First, by taking part you contribute to its success, and so help along a splendid movement; secondly, competition stimulates for better results next year; and, thirdly, by comparing notes and coming in contact with other gardeners and their exhibits, you form new ideas for your own improvement.

Never mind who ridicules your first attempt as an exhibitor. A few years ago, when I made my first attempt, I had the audacity to compete in the market gardeners' class for a collection of vegetables. While I did not get a prize, I stayed with it until, three years afterwards, I succeeded in getting the third prize, beating a market gardener who had almost as many acres as I had feet frontage to my city back garden.

The best time for apples to reach South Africa is in the months of October, November and December. Apples marketed at that time find a good demand at remunerative prices.—C. W. Baxter, Dominion Fruit Division, Ottawa.

GREENHOUSES



MANUFACTURERS GREENHOUSE BARS AND SASH
Batts Limited
366-415 PACIFIC AVENUE - - WEST TORONTO

The "Universal" (Dahlstrom) folding strawberry crates. It holds 24 full measure dry quarts. It is the same box as the American Ventilated.

Small Fruit Packages

(Continued from page 239.)

It is therefore in the interests of the fruit growers in this province and throughout the Dominion to give this question of standard packages and grading their serious consideration, so that when legislation is possible we may obtain that which is most suitable to our needs.

Standardization will give to our fruit industry a measure of stability that will enable all those engaged in it to buy and sell with a confidence they do not enjoy to-day.

It has been my privilege to observe the possibilities for small fruit production in the various fruit districts throughout Canada, and I am fully convinced that nowhere are the possibilities greater than in Quebec. Nature has made it possible to produce fruit of a quality which cannot be surpassed, and the markets are established.

Spring Potatoes

The place for storing potatoes should have plenty of ventilation. Bins ought not to be over eight feet square and should have slat walls with hollow partitions, or there should be plenty of ventilating tubes with slat sides reaching from top to bottom of the bin. Where bins are as large as eight feet square a ventilating tube in the middle of each one would be desirable. Ventilation helps to carry the moisture, thus keeping the potatoes dry and making it possible to cool them off quickly in the fall and keep them cool during the winter.

The best temperature for potatoes is as near 35 degrees Fahrenheit as possible. A good tested thermometer or several in different locations and at different heights should be kept in the cellar and watched at frequent intervals.

In putting potatoes into a storage cellar they should be run over a screen that will take out the dirt. Large potato cellars should be filled in layers so as to give the potatoes the best possible opportunity to cool off and dry. Dumping a whole day's digging in one place is not the best practice.

The best method for keeping moisture from collecting on the inside of the roof of potato cellars is to cover them with straw or strawy manure. Giving plenty of ventilation also helps.

The Canadian Horticulturist is invaluable to fruit growers. The page devoted to Niagara District Notes is very interesting to me. I hope it will be continued.—C. L. Biggar, Niagara Falls, Ont.

How many hairs has a Bear ?

We doubt if there is any person in Canada who is not interested in Furs, and who does not admire their beauty, softness and warmth; but how many have ever thought of the great number of hairs required to cover a skin to produce this warmth and softness?

The actual number of hairs on any given skin can be actually determined by mathematics and an abundance of patience.

We have cut a piece out of a black bear skin, one inch square in size—have sealed and deposited it with the bank and are giving

$300.00 IN PRIZES

to the 64 persons who are nearest correct in their estimate of the actual number of hairs on that one square inch of black bear skin.

This contest is entirely free to every one who complies with the conditions, and we might frankly state that the sole object of this contest is to familiarize as many people in Canada as possible with the wonderful bargains they can secure in stylish guaranteed Furs and Fur garments, through Hallam's system of dealing direct "From Trapper to Wearer"

Just send today for a copy of the 1916-17 Edition of

HALLAM'S FUR STYLE BOOK

RAW FURS
We are the Largest Cash Buyers of Raw Furs direct from Trappers in Canada—Our Raw Fur Quotations sent Free.

GUNS
Traps—Animal Bait, Fish Nets, Tackle, and complete line of sportsmen's supplies, at very low prices. 32 Page catalog free.

on the back cover of which are full particulars of this Zoological contest.

This 1916-17 edition is a handsomely printed 32 page book—fully illustrates the latest styles and models of Fur Coats and Sets and will show you how you can save many dollars on furs. It will pay you to read it. Don't fail to send for it to-day and have a free chance of sharing this $300.00.

Be sure to address as follows:

John Hallam Limited 519 HALLAM BLDG TORONTO

FRUIT MACHINERY CO.
INGERSOLL, ONT.

Manufacturers of the Ontario Power Sprayer Model 2-B, the handiest of them all. Engine fills the tank. Also a complete line of Apple Evaporating Machinery and power evaporator equipment. Our complete power systems for evaporating as we install them are practical, sanitary and labor saving.

Write for free illustrated catalogue on spraying and evaporating.

Cold Storage Fruit Warehouse

Finest Apple Rooms in the Dominion for Export and Local Trade.

Special Rooms for all Kinds of Perishable Goods.

The Canada Cold Storage Co.
Limited,
53 William St., MONTREAL, QUE.

Wilkinson Plows

THE oldest line of steel beam plows in the Dominion, made in the old Wilkinson Plow Co's factory, by old Wilkinson Plow Co. experts—every one of them men who know their business. It is the standard line of plows and includes 25 or more styles to choose from. U. S. S. Soft Center Steel Moldboards, highly tempered and guaranteed to clean in any soil. Steel beams, steel landsides and high carbon steel coulter. Clevises can be used either stiff or swing. Each plow is fitted especially with its own pair of handles—rock elm, long and heavy and thoroughly braced. The long body makes it a very steady running plow. Shares of all widths—specials for stony or clay land.

General purpose, light, medium, and heavy, side hill, sod, drill or one horse plows

The plow shown turns a beautiful furrow, with minimum draft and narrow furrow at finish. *Ask for new booklet.*

The Bateman-Wilkinson Co., Limited
461 Symington Avenue, Toronto Canada

Repairs for all Wilkinson Plows

Why Not You?

YOU have doubtless admired so-and-so's greenhouse—perhaps envied it. To see the owner cutting a bunch of flowers while you passed, muffled up against the blizzard, aroused even deeper longing. When you write us regarding prices, you may find you have been denying yourself and your family quite needlessly.

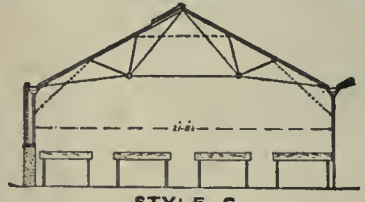
Write Dept. B.

GLASS GARDEN BUILDERS, LIMITED

Kent Building, Toronto.

Transportation Building, St. James St., Montreal.

Factory—Georgetown, Ont.



STYLE C

This is a New Model for 1915, the result of fifteen years' experience in Greenhouse construction for Canada.

Dotted lines show location of wind-ties that positively prevents vibration of the sash.

Supplied in widths up to 25 feet 2¼ inches from post to post.

KING CONSTRUCTION CO.,
40 Dovercourt Road · Toronto.

SMALL FRUITS

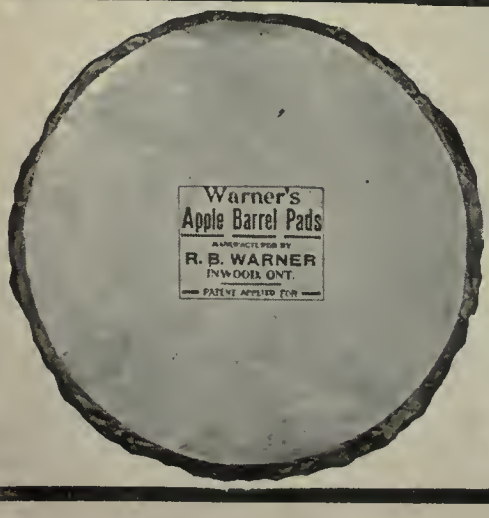
Raspberries, Gooseberries, Red Currants, Black Currants, Strawberries, Rhubarb Roots, etc., etc.

WM. FLEMING
NURSERYMAN
Owen Sound, Ontario

GINSENG Seeds and Young Roots **FOR SALE**

Prices on Request.

JOSEPH LEARY
Whitevale - - Ontario



"An Ounce of Prevention"

You know the rest. In other words, a little attention given to your apples when packing may save much trouble when the customer gets them. Your customer buys first quality apples and pays a first quality price. He doesn't want to get his shipment shaken and bruised. Result—probable loss of customer as well as your own prestige.

A WARNER APPLE BARREL PAD

placed in each end of the barrel holds the apples firm and absolutely prevents them from bruising when heading in or during shipment. You see the advantage, and Warner's pads cost but a few cents each.

R. B. Warner, Inwood, Ont.

Transportation Traiffs

Geo. E. McIntosh, Forest, Ont., Transportation Secretary for Ontario Fruit Growers' Association.

Poorly packed shipments mean dissatisfied customers. There are a number of new producers of fruit placing their crop on the market this season, and this word of caution is more particularly to those, while there are others who could also profit by more care in packing. Some are using for the first time the Leno covered basket, shipping by express with the new protector. These shippers should acquaint themselves thoroughly with the proper method of putting up this package. Express officials have brought to our attention several baskets packed in such a way that even with the best of handling the contents would be badly damaged. The fruit should be sufficiently heaped and so faced that the leno will hold it firmly in place. "Money saved by inadequate packing rarely equals profits lost through dissatisfied customers."

Fresh Fruits via Freight.—As several inquiries have been received regarding carload rates to points Port Arthur and west, the following schedule applying on 20,000 lbs. minimum, effective from nearly all Ontario fruit shipping centres, may act as a ready reference:

	Per 100 lbs.
Port Arthur, Ont.	$ .50
Fort William, Ont.	.50
Battleford, Sask.	1.42
Brandon, Man.	.80
Calgary, Alta.	1.59
Camrose, Alta.	1.60
Edmonton, Alta.	1 64
Lethbridge, Alta.	1.58
Medicine Hat, Alta.	1.50
Moose Jaw, Sask.	1.26
North Battleford, Sask.	1.42
Portage la Prairie, Man.	.75
Prince Albert, Sask.	1.40
Regina, Sask.	1.21
Saskatoon, Sask.	1.34
South Saskatchewan, Sask.	1.34
Swift Current, Sask.	1.38
Weyburn, Sask.	1.17
Winnipeg, Man.	.66
Yorkton, Sask.	1.13

When a car is delivered without routing instructions, it is the duty of the initial carrier to send it over the cheapest available route. Where the terminal carrier finds that the way bill is ambiguous as to place of delivery it should notify the initial carrier and await instructions.

Will Import U. S. Apples

That the prairie farmers are still resenting the recent increase in the duty on apples and blaming British Columbia fruit growers for having agitated for it is indicated by the following item taken from the Grain Growers' Guide published in Winnipeg:

"The members of Acme Local, No. 62, United Farmers of Alberta, have decided not to buy B. C. apples on account of the duty that is being charged. Instead will buy apples from fruit growers in the United States and let the duty charged help pay the revenue."

"The central office is in touch with growers in Washington willing to ship direct to the consumers in Alberta, and will gladly put you in touch with these people if any union is intending to buy apples this fall and would like to secure them from the States."

* * *

It is said that the fruit crop in the Yakima Valley will total 10,000 carloads this year.

The Fruit and Produce Market

The Commission firms undernoted wish consignments of fruit and general produce. They will be pleased to have you write them for information, shipping stamps, etc., if you have fruit or vegetables for sale.

H. J. ASH

44-46 Church St. - Toronto, Ont.

CONSIGNMENTS OF FRUIT & VEGETABLES SOLICITED

We give personal, consistent and raliable attention to every consignment. Shipping stamps furnished on request.

DAWSON-ELLIOTT Co.

32 West Market St., Toronto, Ont.

Wholesale Fruit and Produce. Consignments Solicited.

STRONACH & SONS

33 Church St., Toronto, Ont.

Wholesale Fruit, Produce and Commission Merchants.

A Good Firm on Two Good Markets

TOM ADAMS AND BROS.

Fruit Merchants

BRISTOL

TOM ADAMS AND BROS.

Fruit Merchants

SWANSEA

Head Office:—BRISTOL

Get in touch with them to-day if you want top prices for your produce.

Brown Fruit Company

LIMITED

EDMONTON, ALTA.

Wholesale Fruits and Produce.
Car-load Shippers of Potatoes

SEND FOR QUOTATIONS.

This Space Costs $2.80 per month.

Order now for November and December

HERBERT PETERS

88 Front St. E., Toronto, Ont.

Wholesale Fruit and Produce

See advertisement on page 235.

WANTED

Consignments of Cherries, Tomatoes, Peaches, Grapes and all kinds of fruit; also carlot apples. Centrally located, convenient to all car tracks. Commission 10%.

HYSLOP & SONS, 132 Princess St. Winnipeg, Man

References— Any mercantile agency, or Bank of Hamilton, Hamilton, Ont.

FRED BARKER

25 Church St., Toronto, Ont.

Representing J. & H. Goodwin, Ltd., Manchester; Thos. Russell, Glasgow; Nothard & Lowe, London; G. R. Cooper, Liverpool.

APPLE RECEIVERS.
Consignments Solicited.

LAING BROS.

307-309 Elgin Ave., Winnipeg

Wholesale Fruit, Groceries, Produce, Grains, Hay and Commission Merchants

We want Consignments

of Tomatoes, Peaches, Cherries, Grapes, and all kinds of fruits and vegetables in baskets, in car lots or less. We make a specialty of barrel apples in car lots. Write us.

McBRIDE BROTHERS

J. R. McBride, Proprietor.

Fruit Exporters, Importers and Commission Merchants.

Consignments solicited. Terms cash.

35 CHURCH ST., - TORONTO, ONT.

SAMUEL HISEY

82 Front St. E., Toronto, Ont.

Wholesale Produce and Commission Merchant. Consignments Solicited.

The Oldest Commission House in Toronto

McWILLIAMS & EVERIST

Send your Consignments.

Apple Receivers

Representing

Simons, Shuttleworth & Co.
Liverpool and Manchester.

Simons, Jacobs & Co. Garcia, Jacobs & Co.
Glasgow, Scotland. London, England.

SIMONS FRUIT CO,

David L. Dick, Manager.

27 CHURCH ST. : TORONTO, ONT.

Information regarding export markets on request.

Cable Address: "Astaphis, London."

Established 1885

Telephone: Hop 5468
" 5469
East 838
North 2390

WALTER FORD,

Fruit Broker and Potato Factor,

New Hibernia House,
Winchester Street,
Borough Market,
LONDON, S. E.

Depots:
King's Cross Potato Market
Stratford Market

Consignments of Apples will receive prompt attention and Account Sales with remittance will be despatched immediately after sale of Goods. Shipping Mark (F).

CLASSIFIED ADVERTISEMENTS

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign, or single letter to count as one word, minimum cost 30c., strictly cash in advance.

REAL ESTATE

ALL KINDS OF FARMS—Fruit farms a specialty. Write for Catalogue. W. B. Calder, Grimsby.

SEEDS AND BULBS.

BULBS—Of all descriptions. Write for prices. C. Keur & Sons, Hillegom, Holland. New York Branch, 810 Bridge Street.

BEES.

ITALIAN BEES AND QUEENS as advertised on page 252. Catalogue free. Deroy Taylor Co., Newark, N.Y.

BEE SUPPLIES.

Q. C. hives yield—on account of its winter protectiveness, equable temperature, brood-nest work, incentive, etc.—sixty pounds more than average of others. Can you afford to not test it? Address W. F. McCready, Estero, Florida, U. S. A.

1,000 GUMMED HONEY LABELS, two colors, any wording, for $1.30. Catalogue free. Eastern Label Co., Clintonville, Conn.

HONEY.

FOR SALE—12,000 lbs. finest well ripened white clover honey. Single case, containing 60 lbs. or six ten lb. pails, $7.20. Larger quantities quoted on application. Geo. Braven, Dunnville, Ont.

WANTED.—Several tons honey, light or dark, in barrels or 60 lb. tins. Will supply barrels, if necessary. Lambeth Bee and Poultry Yards, Lambeth, Ont.

NEW AND RARE SEEDS

Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalogue free.

Perry's Hardy Plant Farm
ENFIELD, MIDDLESEX, ENG.

SKINNER SYSTEM OF IRRIGATION

Control complete. Prevents drought losses. Reduces labor bills. Increases profit. Special Portable Line for $11.75. Send for new Bulletin.

The Skinner Irrigation Co.
217 Water Street Troy, Ohio

FREE LAND
For the SETTLER in
Northern Ontario

Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.

Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.

For full information as to terms, regulations, and settlers rates, write to

H. A. Macdonell
Director of Colonization
Parliament Buildings, TORONTO

HON. G. HOWARD FERGUSON,
Minister of Lands, Forests and Mines.

Bulletins and Reports

Bulletin No. 239, on "Potatoes," by C. A. Zavitz, B.S.A., and Bulletin No. 240, entitled "Some Bacterial Diseases of Vegetables Found in Ontario," by Dan H. Jones, B.S.A., have recently been issued by the Ontario Department of Agriculture; also the Thirty-sixth Annual Report of the Ontario Beekeepers' Association for 1915. The first mentioned bulletin is an unusually full treatment of the subject.

Among the bulletins recently received by The Canadian Horticulturist are the following:

"The Cranberry Industry and its Possibility in Canada," by M. B. Davis, B.S.A., this is bulletin 29 of the second series, Publications Branch, Ottawa. "Soil Fertility, Its Economic Maintenance and Increase," by Frank T. Shutt, M.A., D.Sc. Bulletin 27, second series.

"The report of the Minister of Agriculture for Ontario, 1915," "The Report of the Entomological Society for Ontario, 1915," "The Canadian Entomologist," "The Review of Applied Entomology."

The Utah Agricultural Experiment Station has published the following three bulletins mostly dealing with irrigation problems: Bulletin 142, "The Irrigation of Peaches," by L. D. Batchelor; Bulletin 143, "Fruit Tree Root Systems," by A. B. Ballantyne, and Bulletin 144, "Water Table Variations," by the same author.

The Ohio Agricultural Experiment Station, Wooster, Ohio, has sent us "Orchard Rejuvenation in Ohio," Bulletin 301. Bulletin 252, of the Maine Agricultural Station, is entitled "Spraying Experiments and Apple Diseases in 1915."

Items of Interest

Thirty thousand gallons of peaches and fifteen tons of pure jams are being prepared at the by-products department of the Vineland Horticultural Station, Vineland, Ont., by order of the Ontario Government for the hospitals at the front.

The fruit growers of St. Catharines and surrounding district are again donating canned peaches for the soldiers at the front. Last year 20,000 quarts of canned peaches went forward, and it is expected that this record will be surpassed this year.

Among the exhibitors in fruit at the Ottawa Exhibition this year was Jas. F. Reason, of Penticton, B.C. He was successful in securing two first prizes in McIntosh Red, a first in crab apple, and a third in Golden Russets.

In the September issue of The Canadian Horticulturist appeared an article entitled "Standardization of Fruit Packages." The author of this article was A. H. Flack, Chief Fruit Inspector for the prairie provinces, Room 112, Carlton Bldg., Portage Ave., Winnipeg, Man. Unfortunately Mr. Flack's name was printed as Slack, which we regret. Another article by Mr. Flack appears elsewhere in this issue.

The death is announced at the front of Capt. H. H. Pineo, son of W. W. Pineo, of Waterville, N.S., one of the leading fruit growers of the Annapolis Valley. A description of Mr. Pineo's orchard and farm was published some months ago in The Canadian Horticulturist.

During the summer months the British market has been well supplied with apples from Australia and Tasmania. Imports this season have exceeded all previous records, and fair prices have been obtained.

Reporting to the Department of Trade and Commerce, Mr. J. Forsyth Smith, Canadian Fruit Trade Commissioner in England, states that the removal of the embargo on the importation of canned vegetables inasfar as it applies to products of the British Empire, has awakened renewed interest in Canadian canned vegetables in the north of England. Letters from dealers indicate that they will be open this year to make purchases from Canadian shippers.

The Ontario Fruit Division, under the direction of Mr. P. W. Hodgetts, Provincial Director of Horticulturist, is sending 20,000 boxes of apples to the soldiers at the front. The apples are principally Spys, Baldwins, Golden Russets, and other hardy varieties. Two cars have already gone forward. These apples are being distributed by Mr. R. Reid, London, representative of the Ontario Government in Great Britain. Last year's shipments were greatly appreciated by the soldiers.

The cost of production, in general, diminishes as the size of the orchard increases. The exceptions to this rule are due to the fact that for each locality there is an optimum limit set by the natural and economical conditions of the region and that the costs of production are lowest where the extent of the orchard approaches more closely to this optimum limit.—Oregon Agricultural College Experimental Station.

During the winter protect smooth bark trees from the sun on the south side of the tree, or expect injury there next spring from sunscald.

Save Those Apples

BY USING A

MAXWELL
CIDER PRESS

HOW many go to waste that might be turned into Cider or Cider Vinegar with a small investment. Maxwell Presses are well made, of the best material, heavy substantial frame, and cross section of extra weight and strength; furnished with two crates, galvanized hoops and tinned rivets. Made for either hand or power.

MAXWELLS LIMITED
St. Mary's, Ontario

The Canadian Horticulturist

Floral Edition

Vol. XXXIX TORONTO, NOVEMBER, 1916 No. 11

The Triumph of Efficient Methods*

W. E. Biggar, Chief Provincial Fruit Pests Inspector, Hamilton, Ont.

NEVER in the history of Canadian orcharding has there been a year when the value of systematic and thorough spraying has been more clearly demonstrated than during the past season. Last spring, owing to the scarcity of labor and the high price of materials, many orchardists did not give their trees the usual amount of attention. Then followed a season which was peculiarly adapted for the spread of diseases, particularly apple scab. The result of this has been that farmers who did not give the usual amount of attention to spraying have very little if any No. 1 fruit for sale this year. The pecuniary loss to themselves throughout the province can hardly be estimated, but it will total up to much more than whatever might have been saved in time in the spring.

*Written by an editor of The Canadian Horticulturist from notes obtained during a recent interview with Mr. Biggar.

The comparatively few men who gave the usual thorough spraying this spring are the men who are marketing the No. 1 fruit this fall, and incidentally the men who are making the profits. Orchards throughout Ontario which were not sprayed this year have been practically worthless. In many orchards the fruit has scarcely been worth the trouble of picking. An exception to this, however, is the district around Owen Sound where, for some reason or other, the fruit even in unsprayed orchards was very good.

Some exceptionally large returns have been obtained this year from apple orchards in which spraying was systematically practiced. Probably the greater amount of spraying this year was done in the Niagara District. As a result there are more clean apples in this district this year than in all the rest of the province. On several farms where spraying was thoroughly done exceptionally large returns have been obtained. The crops throughout have been remarkably free from scab and codling moth. In many orchards where spraying had been practiced the entire crop of apples, Nos. 1, 2 and 3 have sold at an average of three dollars a barrel. In one orchard east of Hamilton, twenty-five acres in extent, through careful pruning and spraying a crop was harvested this year which will sell at between $6,000 and $7,000. Another grower in this district from his eight acres of apples expects to sell $3,000 worth of fruit. Still another man sold six acres of apples on the tree for $900. This has been accomplished only by careful watching of the orchard and thorough spraying at the proper time. The fact that a good quality of apples was so scarce made for better prices to those who had clean fruit.

A real back-to-the-land district. Cedar Hill, Vancouver Island, was once subdivided into lots for real estate. It is now reverting to farming fruit and vegetables, for which it is admirably adapted.

In one orchard near Grimsby the fruit in 1914 was so scabby that the owner could not sell it to packers. The crop had to be sold for cider making. In 1915 Prof. Cæsar, in conjunction with the Provincial Inspectors, took over this orchard and by thorough pruning and spraying put it in good shape. The immediate result of this work in the spring of 1915 was that the apples that fall sold for $1,000. Spraying was continued this year and a very nice crop of apples was harvested. The owner estimates that he will sell his 1916 crop for $3,500. Money talks.

This has been a very bad year for scab on account of the wet season. This disease is probably more general throughout the province this year than ever before. A significant fact is seen in the contract between the United Fruit Growers of Ontario and the Grain Growers' Grain Co., where the Ontario fruit growers only guaranteed to supply 10 per cent. of No. 1 fruit. The great discrimination in prices between No. 1 and No. 2 grades of fruit should be an object lesson to farmers who thought to save money by neglecting their spraying last spring. Apples of good quality are selling at high prices this year. On the Hamilton market a few days since, good apples were selling at a higher rate per basket than peaches.

The San Jose Scale is being largely controlled in the Niagara district. It has been a life and death struggle with the fruit growers. It is only when fruit growers realize the necessity for drastic measures that such a disease can be successfully dealt with. In counties where the scale has not been fought against by some of the fruit growers it is gaining rapidly. This is especially true of some of the districts along the shore of Lake Erie. In one county over 1,400 acres of orchard have been destroyed by scale. The proportion which this menace has assumed in this district is probably due to the fact that there are no pest inspectors there such as there are in the Niagara District. Each man does what he thinks best.

The people have protection against these diseases entirely within their own grasp. Where twenty-five ratepayers in a township want inspection the township must appoint a fruit pests inspector. This inspector will have authority to compel every man in the township to spray his orchard. Where a man neglects spraying the inspector will be empowered to have the spraying done, and to have the cost of it collected along with the man's taxes. This prevents the spread of disease by the non-spraying of orchards by careless lessees. The Niagara District is perhaps the best supplied with inspectors of any district in Canada. Every township there has from one to three inspectors. There has been no damage of importance done by the scale north of the commercial peach belt, or in other words, of a line running from Toronto to Sarnia.

Gratifying Results.

Little peach and peach yellows are now well under control. Three years ago over 60,000 trees were taken out of the Niagara and Fonthill districts because of these diseases. Last year not more than one diseased tree was found on an average in each orchard by the inspectors. The only method for the control of these diseases is to take out the diseased tree and burn it.

The "Lizzie" stands find their best place in receiving and storing small lots of heteregeneous kinds and grades of fruits. They hold sixteen eleven-quart baskets. Note article on page 263.

The inspectors are doing splendid work in eradicating scale and other diseases of the orchard. This year is a particularly good year for them to impress on the fruit grower the absolute necessity for constant attention to his trees if he expects to reap any profits from them.

Oyster Shell Bark Louse can be best controlled by waiting until it hatches out, when a couple of applications of Lime sulphur or Kerosene Emulsion should be given.

Growth of Pruned and Unpruned Trees

THE pruning of fruit trees during the season of planting is advocated by some authorities, whilst others advise its postponement until after a season's growth. Both methods are claimed to be successful. The results of a series of experiments conducted to determine the relative value of both methods are reported in the Journal of the Royal Horticultural Society. The experiments were planned with a view to making comparative measurements of the growth of trees pruned at the different periods, and to determining whether the results varied with the variety of tree or stock upon which a given variety was grafted.

Eighty trees were used in the experiment, comprising five varieties grafted on the Paradise stock and five varieties on the Crab stock. They were planted in five rows ten feet apart each way. After growth had ceased in the autumn of each of the three years following planting, the length of each branch and twig produced during the previous growing season was measured. After the measurements had been completed each season all the trees were pruned in order to give them the form desired and to admit light to the centre of the trees.

Before the first general pruning in February, 1913, it was evident that the trees which had not been pruned after planting had far more flower-buds upon them than those which had been pruned. This effect was so marked that it was in most cases difficult to find shoot-buds to which to prune, and consequently pruning had to be done into the two-year-old wood of 1911, instead of the one-year-old wood. This was the case with every variety, so that although in every case the amount of growth made in 1912 was greater in the pruned than in the unpruned trees, the amount of wood removed at pruning time was greater in every case in the unpruned than in the pruned trees.

The results of the measurements during the three seasons 1912-14 lead to the conclusion that all varieties of apples grow better in the first season if they are pruned in the season of planting than if left unpruned, and that the check imposed by neglect of pruning is felt by trees on Paradise stock for at least three years after planting, while trees on Crab stock appear to recover more quickly and perhaps even to gain slightly in their second or third years. The difference in behavior of the trees on different stocks gives a probable explanation of the difference which has arisen in practice. Since, however, in all cases the first year's growth is very important, the practice of pruning during the season of planting is preferable.

The Expeditious Handling of Basket Fruit

Edwin Smith, B.S.A., In Charge of Fruit Cold Storage and Transportation Investigation, Grimsby, Ont.

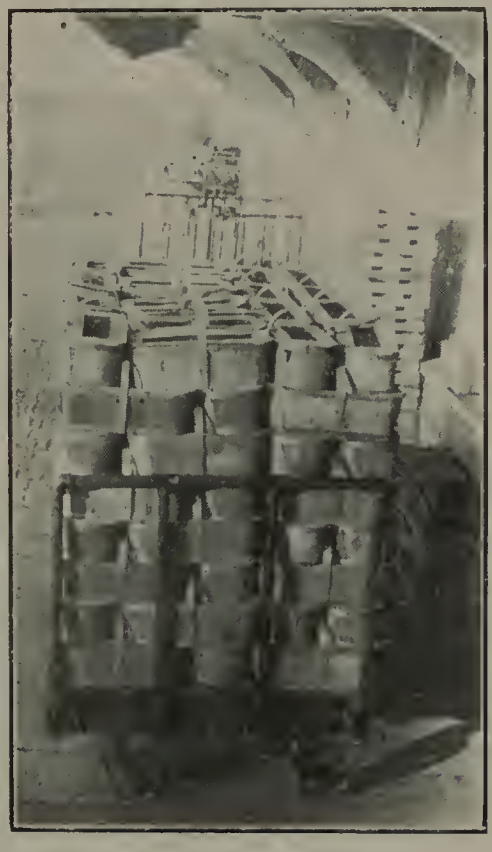
WHEN the Dominion Precooling and Experimental Warehouse at Grimsby, Ont., was put in operation in 1914 the problem arose of handling several thousand baskets from the receiving platform to the precooling rooms, and from the rooms to the cars in the space of a few hours' time. Up to this time baskets had been handled by hand from fruit drays to express platform and again by hand from platform to cars. While this method would be out of the question on account of labor required, it would also be inconvenient since in precooling it is necessary to have the fruit packages raised up from the floor while cooling and would not be acceptable on account of the excessive handling given the fruit.

Four Swivel-wheel Trucks.

By using several types of four-wheeled slatted-platform trucks their merits were combined in a composite which produced the platform truck with four swivel castors shown in the accompanying illustrations. To accommodate both 11-qt., 6-qt. baskets and various other fruit packages efficiently, and still retain a size convenient for passing through corridors and doors, a length of five feet six inches and a width of three feet two inches was adopted as standard for the platform proper. The end racks extend out about one inch from the end of the platform. They are made from one inch gas pipe and are two feet one and one half inches higher than the surface of the platform. These are securely bracketed to the body of the truck to give sufficient strength for handling loads.

The platform is made from eight birch strips two and one quarter inches wide by seven-eighths of an inch thick, and two outside strips four and one half inches wide by seven-eighths of an inch thick. These are spaced one and one quarter inches apart, and supported on a birch frame made from one and one half inch by five inch material, having four cross bed-pieces of the same material. These trucks cost fifteen dollars and eighty-five cents each, and may be manufactured locally.

It is important to have four swivel wheels or castors, as in handling from one to six carloads of fruit a day it is necessary to leave the fruit on the trucks while cooling, filling the precooling rooms entirely with loaded trucks and removing them to the car as soon as cooled. Were it not for the swivels on each corner it would be impossible to fill the rooms without great loss in space. They allow trucks to be placed in corners, shoved sidewise in filling spaces and turned about sharp curves in narrow alleys. Great difficulty would be experienced in turning into the rooms from the corridors were it not for the swivels at both ends. Although this difficulty might be overcome in the center-wheeled type of truck, the latter is not adapted to close placing in the rooms. The castors



Two men can roll one of these four swivel-wheel trucks bearing a load of from one thousand to one thousand six hundred pounds. Note the swivel wheels, which allow of pushing into corners.

used are of very heavy construction with steel pins in the swivels. This is important on account of the heavy loads carried, causing a heavy strain on these parts when running over sills, against obstacles, or into refrigerator cars. There has been the objection raised that this type of truck is more difficult to handle than one with other kind of wheels. This is true, but three years' experience at Grimsby has shown that with plenty of lubrication two men can roll them on the level, and that the advantage of the swivel wheels more than offsets this difficulty.

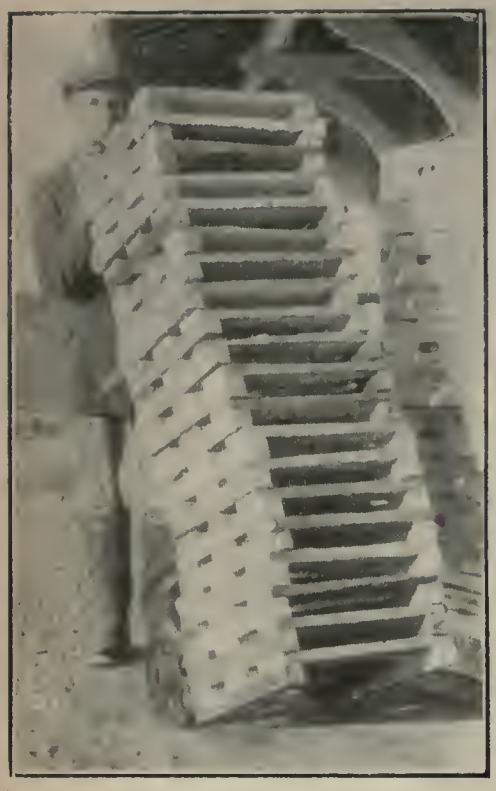
In loading these trucks ordinarily from one hundred and sixty to one hundred and eighty six-quart baskets are used for a load, and from eighty-four to one hundred eleven-quart baskets, aggregating a weight from one thousand to one thousand six hundred pounds a truck. On account of different kinds of fruit and different times of receiving, not all of the trucks are full when placed in the rooms, so that it requires from fourteen to seventeen trucks to handle a carload. The rooms at the Grimsby plant will hold seventeen trucks each, so that no difficulty is experienced in placing a carload of fruit in each room. In cars having many small lots of different fruits it is necessary to place different kinds on a single truck. In this case the card placed on the top of the truck states amounts and kinds for checking and tallying purposes.

There is always some necessity to handle leno or heaped baskets of fruit. This is accomplished by building racks to accommodate these packages, and by using the Woolverton or Hunter crates.

The "Lizzie" Truck.

Owing to the large use of boys in handling baskets during the fruit season a system of trucking was demanded that would require less muscle in handling. In working out such a system it was sought to adopt the western clamp box truck to the use of baskets by providing a raised platform or stand, which would at the same time serve the purpose of raising the fruit packages up off the floor to allow the cold air for precooling to pass up through the perforated floor and circulate freely through the fruit packages. In adapting the truck it was found advisable not to use the clamp, but rather to provide it with an extended tongue, as shown in the illustration, which catches underneath the stands on which are piled the baskets or boxes, lifts the stack clear from the floor for trucking, and releases it and slides out when the proper location has been reached. In this manner the stacks of baskets are carried to the precooling rooms for cooling, after which they are carried directly into the car. The fruit is unloaded from the stands, whereupon they are taken back to the receiving platform.

The trucks used in the Grimsby warehouse during the past season proved very useful and satisfactory. The name applied to this truck by the warehouse staff was that of "Lizzie truck." For want of a more convenient name this name still stands, and on busy days at the warehouse the de-



One of the strongest points in favor of the "Lizzie" stands is the low initial cost.

mands for the "Lizzies" were very heavy. While the large trucks are used first, there are days when all the fruit received cannot be accommodated by the large trucks, and many hundred baskets are stacked on "Lizzie" stands.

The "Lizzie" stands find their best place in receiving and storing small lots of heterogeneous kinds and grades of fruits, where it is not advisable to pile them together. It is convenient in finishing off when loading cars, since the space left in the centre of the car for bracing purposes is not great enough to allow the large trucks to enter, whereas there is ample room to shove in the "Lizzie" stands. More fruit can be placed in a precooling room on "Lizzie" stands than on the large trucks. However, in adopting a system of trucking for a new warehouse probably the initial cost of equipment would stand more in this system's favor than any other thing. The cost of equipment for handling a carload of fruit with "Lizzie" trucks would not exceed $25.00. Whereas with the large trucks the investment would amount to $270.00. About the same amount of labor is required to handle fruit on these trucks as on the large ones, since to load a car rapidly it is necessary to have two truckers moving fruit to the car. However, it is to be noted that it is lighter work to handle the "Lizzie" trucks, and it is possible for one man to receive at the door and truck the fruit into rooms without assistance.

It is necessary to advocate the large use of these trucks with caution, since they are not a success unless the baskets used are very strong. As it is necessary to make "two-piles" and "three-piles" of baskets on the stands there is a tendency for the pile to start creening, whereupon the bottom baskets sag, spring or bulge, allowing the creening to increase, much to the injury of the fruit in the bottom baskets, if not the whole pile in case of a toppling over of the stack. This difficulty is not met with in using the large trucks, since piles have such a large base that the baskets bind or tie each other in place like bricks in a wall, giving no chance for the sagging or creening to start. To meet this difficulty it is advisable to use only strong baskets. In making the piles place the baskets closely together so that the weight of the baskets cover fully the edges of the baskets underneath. Make sure the lids of the baskets are fastened at the sides to prevent bulging.

The "Lizzie" trucks are simple to build and may be constructed by any local blacksmith. The stands are made from three one-inch by four-inch boards mounted on two-inch by two-inch strips as raisers. These are made to accommodate a three-pile of six-quart baskets or a two-pile of eleven-quart baskets. The six-quart baskets are customarily stacked ten high, making thirty baskets for each stand, while the eleven-quart baskets are stacked eight high, making a load of sixteen baskets.

It is quite possible to adopt the Grimsby system of handling basket fruits to other phases of the fruit-shipping industry. Much time and labor could be saved in many packing houses, express platforms, shipping warehouses and in wholesale warehouses by the adoption of an efficient trucking system, choosing trucks that best suit the needs of the situation.

Pointers by an Experienced Pear Grower

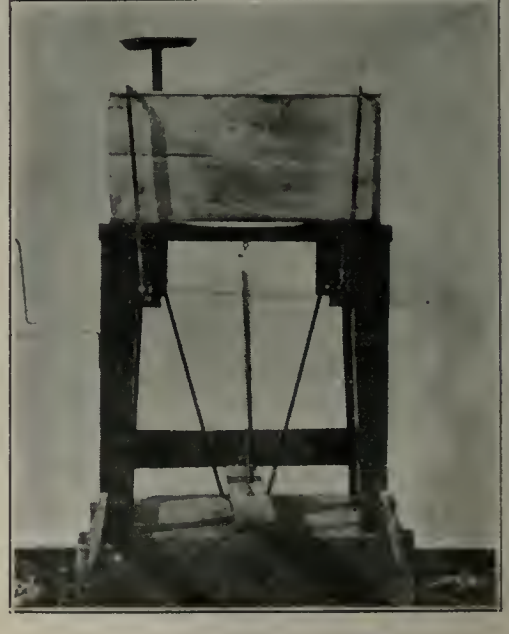
SPECIALIZING in pears has proved profitable on the fruit farm of E. E. Beaman & Son, of Newcastle, Durham County, Ont. The pear orchard comprises ten acres, mostly Bartletts, but with about half an acre of Wilmot, a native variety. While Mr. Beaman has met with success, he also has learned much from his years of experience. The benefit of some of this he gave to an editor of The Canadian Horticulturist, who visited him recently.

In about seven acres of the orchard the trees were set but sixteen feet apart. This Mr. Beaman told us is too close for pear trees. If he were setting out another orchard he would have his pear trees thirty feet by twenty feet. With trees too close the air doesn't circulate. As the trees become larger the difficulty of spraying is increased, as the nearly interlocking branches make it difficult to get an outfit through; and the crowding results in a high type of tree difficult to spray.

"From the standpoint of fruit," said Mr. Beaman, "more room is also desirable. The greater amount of sun and air makes for a better color and size in the fruit. And the lower headed tree made possible by this practice makes it much easier to harvest the fruit. Of course, the term 'low-headed' when applied to pear trees has a different meaning than when apple trees are spoken of. The pear tree naturally has a central leader, and is pruned on the pyramidal form, so that when one speaks of low-headed pear trees it must be understod as comparative only."

The orchard is all in sod. The grass is cut and left on the ground as a mulch.

"The Pear Psylla has been the worst pest in our orchard," said Mr. Beaman, "and we find it very difficult to control. This year we are using 'Black Leaf 40' on our trees, but we do not yet know with what success. We also have had some injury from the green fruit worm. We use lime sulphur mainly in our orchard, although some Bordeaux is used as well. When spraying with the latter we use but three pounds of copper sulphate to the



A simple apple box press is of value to anyone who packs apples in boxes. Photo shows press holding top on box for nailing.

barrel, instead of four, as recommended. This does not injure the foliage."

When one knows what to look for it is comparatively easy to detect the eggs of the pear psylla.

In the nymph stage the insect lives on the foliage and branches of the tree. The damage is done by the insect exuding a honey dew which turns black and discolors the fruit. To one who is accustomed to this insect, its presence may be detected without even looking at the tree. Wasps and hornets feed on this honey dew and wherever damage from pear psylla is being done one can hear the hum of these insects.

This year Mr. Beaman will have only a small crop. Where last year he had 200 barrels of Bartletts, this year he will have only 30 to 40 barrels.

"Two factors worked for a small crop in my orchard," said Mr. Beaman. "First, we had such an unfavorable season that our crop would have been a light one in any case, and then a windstorm which visited this district about September 1st completed the disaster. I have not been, however, so unfortunate as my neighbor, Mr. F. B. Lovekin," and he pointed to some of the damage done to his neighbor's farm. Mr. Lovekin, one of the largest orchardists of Ontario, had eighteen large apple trees taken out root and branch, a barn and a windmill blown down, and much fruit destroyed.

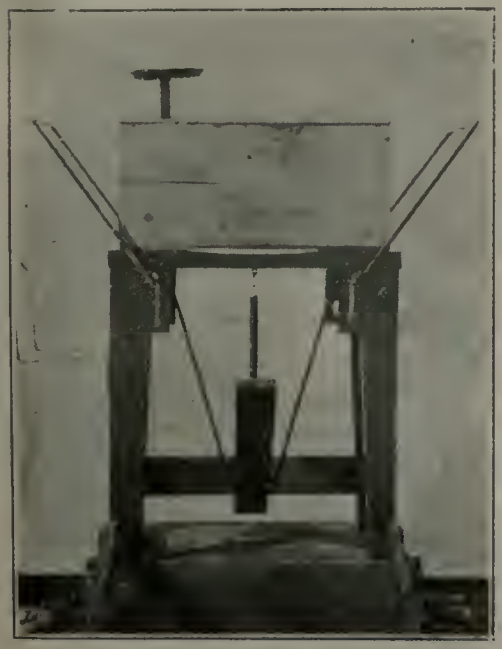
Mr. Beaman markets all his fruit in barrels. The pears are shipped to commission merchants in Montreal in the fall. Spy apples that are also grown successfully, are packed in barrels and stored until the middle or the end of April. They are then shipped to Montreal, where they have sometimes brought as high as eight dollars a barrel. Mr. Beaman's farm is beautifully situated on the shore of Lake Ontario. It is in one of the best fruit sections of the province.

Baskets of fruit for shipment to the western provinces are better protected by crates. These are especially necessary where fruit must be reshipped. Note "Lizzie" stand.

Lessons from the 1916 Apple Season

P. J. Carey, Dominion Fruit Inspector

THERE are apple growers in Ontario this year who are making large returns from their orchards. This is the case, in spite of the fact that the season has been an unfavorable and for most growers an unprofitable one. The successful growers are men who, through careful attention to business, have reaped good crops of clean apples. Although the number of such orchards is not large, it is sufficient to demonstrate that it is possible to grow clean fruit under the most unfavorable conditions. This should serve as an object lesson, and should inspire those who have had only partial success to still greater efforts along the line of spraying.



Press released after top has been nailed on. Note pan above for nails and rack at left for boards.

The apple situation this season is perhaps the most disappointing and most discouraging in the history of apple growing. The general quality of the fruit has never been worse, but those who are vitally interested in the betterment of the apple industry, may take consolation in the knowledge that climatic conditions had very much to do with the general quality, as well as with the shortage of the crop. It is only fair to our growers to say that many of them worked diligently and put up a good fight, hoping to win out, but the odds were against them. The pride and ambition of many good orchardists have received a setback. They have been forced to the conclusion that it is not an easy task to grow first class apples in Ontario.

Where spraying was thoroughly and systematically done we have a percentage of clean fruit. Where this operation was neglected orchards contain nothing but absolute trash.

Marketing the Crop.

As the growing season was full of difficulties, resulting in a failure to produce fruit of good quality, one would at once conclude that the marketing of such a crop would not be an easy task. The shortage of the supply is the only factor that relieves the situation. The consumer must have some apples regardless of the quality or prices. Dealers, sizing up the situation, bought rather freely, paying good prices. There is a free movement of anything fair with an indication that it will take the whole crop to supply the demand. When fruit is of poor quality, there is always a danger of trouble in carrying out contracts. This is more especially true when the principal defect is the fungus on the apples, which often causes the fruit to change while in transit. This will be met to some extent by the fact that the marking on packages will be low, a very large percentage being marked "No. 3." This grade mark will cover all the fruit packed, from some orchards. In this case, a distinguishing mark on packages will indicate that the fruit is superior to that found in ordinary "No. 3."

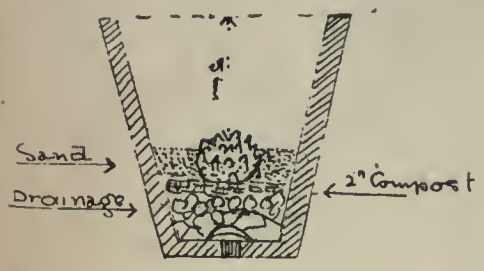
The Dominion Fruit Branch, anxious to protect the consumer as well as to help out the producer, is doing its utmost to make the best of a bad situation. Inspectors are instructed, that while there is to be no falling down in the grades, they are to give the packer every assistance in the orchards, in order that the fruit may be put on the market, marked what it really is.

A large number of growers will become discouraged with their failure to produce good fruit, and possibly will let the orchard take care of itself. There is also a danger of many producers neglecting their orchards, owing to the fact that dealers came forward and paid for defective fruit prices that

The House Culture of Bulbs*

Dr. H. M. Speechy, Pilot Mound, Man.

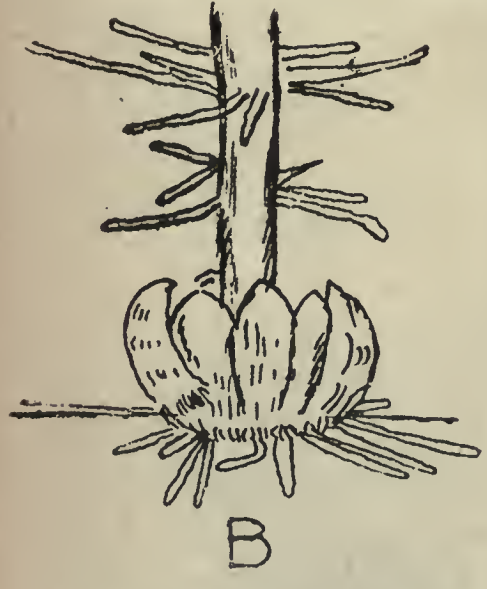
The house cultivation of bulbs may be effected by planting bulbs in soil, in water vases, or in moss fibre. The first great principle to observe is that, whatever method you use, it is important to encourage root-growth for weeks and usually months before top-growth seriously commences. Therefore, as



A

A.—Put a bulb in a six-inch pot, providing an inch or two of drainage covered with a layer of fibry compost and two inches of soil. Place bulb on this and add sand to surround nearly to apex.

soon as your bulbs are ready, put them down in a dark place in your cellar where the temperature runs between 40 degrees and 50 degrees, and keep them there for one to three months before bringing them to light and warmth. When you pot bulbs with our good black loam, you need no other compost. This is how it is done. First, be sure to have clean flower pots; place at the bottom a few pebbles or broken crocks; then put down about a third of chunky rotted sod; and on that pour black loam, or loam and sand equally mixed, to about half the height of the pot or to a sufficient height to allow your bulb-top to be about level with the rim of the pot; finally fill up with soil and pack it well around the bulb so that the latter is "up to its neck" in soil. With some small bulbs, like the freesia, or corms like the crocus, you need only plunge them into the soil of a pot filled except to the last half-inch.



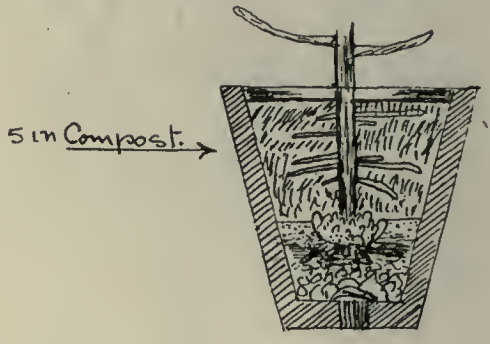
B

B.—Many hardy lilies, including lilium speciosum, have stem roots. These must be fed. This illustrates these roots after the plant has made considerable growth. Pots must not be filled at first.

*Extract from an address delivered before the women's section of the Manitoba Horticultural and Forestry Association.

Bulbs for Pot Culture.

Without going into all the bulbs suitable for pot culture in the winter, I will advise you to order paper white narcissus, Roman hyacinths, and the narcissus known as the "Chinese lily," for blooming during the latter half of December. Dutch hyacinths come in January and February. Freesias bloom in January, and are followed in February and March by crocus and the later narcissus types, such as the Emperor, Empress, Victoria Bicolor, and Von Sion daffodils; while last of all are the beautiful Poet's Narcissus, kinds which



C.

C.—When the growth is six inches high fill up the vacant space with compost for the stem roots to feed upon.

bloom in March. I do not recommend tulips for pot culture. Some bulbs take kindly to the water culture, particularly the paper white narcissus, the "Chinese lily," and Dutch hyacinths. Special glasses are made for these, which hold the bulb just above the water, into which the roots descend; but any vase of sufficient depth will do, if you prop the bulbs up with pebbles, or even pieces of clinker or hard coal, so that they only just touch the water. A little charcoal in the water helps to keep it sweet, but it is easy to drain off old water and replace it with fresh fluid without hurting anything.

The moss-fibre treatment was discovered by the late Robert Sydenham, of Birmingham, who found that, if bulbs were embedded "up to their necks" in a compound of cocoanut fibre charcoal and crushed oyster-shell, they could be grown successfully in bowls or vases without drainage. This is a very elegant method of treating almost any bulb, whether hyacinth, narcissus, or lily. It is important to note that,

The right way to pot a calla lily is here shown on the left, and the wrong way on the right.

while you have your bulbs in the dark cupboard rooting in this or any soil compost, you ought not to water them more than once a week, but when you bring them to light, water them more frequently, according to the judgment of your fingers. When, however, the bulbs begin to flower, they will take water every day.

Climbers for Greenhouses

B. C. Tillett, Hamilton

There are a number of plants which will grow exceedingly well as climbers in a glasshouse. One of these is the beautiful Marechal Niel rose. Anyone who has seen this rose grown to perfection will hardly be satisfied until they have a plant of their own. Its deep golden yellow blooms, with their strong perfume and its delicate foliage, places it in the first rank, if not first of all, among all climbing roses. Another is the beautiful jasmine, with its white star-like flowers and strong fragrance.

If there is space in a corner, do not forget the water lilies. A tub raised on a brick or two, filled a quarter-full of mud, in which the seeds can be sown, and just covered with water, will greatly add to the charm of a greenhouse or winter garden. The seeds will germinate quickly, and some will flower the first year. The temperature should be kept warm.

A few hanging plants, such as asparagus sprengerii, in moss wire baskets, or a few hanging orchids, will repay the little trouble. Among your pot plants do not forget the freezias, the cyclamens, the lilies-of-the-valley, and the hyacinths.

There is still time to plant bulbs in pots for spring flowers. Use hyacinths, daffodils, or tulips. Tulips may still be planted outdoors to advantage.

Hyacinths, daffodils and other bulbs should be set in a cool place until the roots are well formed. Then they may be brought into heat and forced as needed.

Fall Planting and Protection of Roses

H. J. Moore, Queen Victoria Park, Niagara Falls, Ont.

HARDY roses may be planted successfully in November. Except in extremely cold sections the fall is preferable to spring planting. Many people consider roses too tender to plant out in the fall. There is, however, no foundation for this supposition.

Our spring is short. Hot weather comes rapidly, and vegetation starts quickly into growth. The dormant life of the rose is thus awakened almost as soon as frost leaves the ground. If spring planting is the least delayed the plants receive a check. This is harmful and derogatory to the production of flowers. When roses are lifted from the nursery lines many root fibres are broken. This results in a set back, more especially so when growth has started. Whether the plants are taken directly from the field or from the nursery cellar, where they have been stored during winter, they are apt to dry out in transit.

This rose bush is ready for winter. Straw and leaves are scattered over the roots and part way up the stem. Burlap is then tied around.

It does not seem logical that a hardy plant with the nature of the rose should not be as successfully planted in the fall as in the spring, especially when the foregoing disadvantages are considered. During the fall the nurseryman has more time to lift and to pack, thus these things are more carefully done. November is the best month in which to plant, and at this time the soil is usually dry and friable. Good planting cannot be done in a wet soil. Perhaps the greatest advantage of fall planting is that the soil commences to settle firmly around the roots the moment the work is done, and the spring rains and thaws all tend to make it firm. Consequently when the young rootlets develop in spring they are not disturbed or restricted in any way. Neither does the stem growth receive a check.

Soil to Use.

The best soil for roses is a clay loam. A stubborn clay, however, may be so improved by the addition of stable manure, leaf soil and a little sand, as to grow the most beautiful flowers. A light, sandy soil may also, by incorporating a sufficient quantity of clay loam, or in the case of extremely light soils a quantity of pure red clay, be rendered satisfactory. Blue clays or blue clay loams contain poisonous salts of iron. To this their blue color is due. They should be scrupulously avoided. When cultivated it takes a long time for them to oxidise and so become fertile.

Clay loams are usually cool in summer. This is an ideal soil condition for root growth of roses. They are also retentive of moisture, an essential for the production of strong flowering growth. Dark colored humic soils are warm during summer and unsuited to roses. They absorb and retain the sun's heat to a greater extent than light colored clay loams. Roses should not be planted in a dark colored soil which is light in weight or coarsely porous in nature.

Fall is the best time to prepare beds or borders to receive roses, whether intended for November or for spring planting. New ground should be trenched or dug to a depth of eighteen inches. Half rotted stable manure, preferably from the cow stable, should be spread over the surface of beds where spring planting will be done, and on those to be planted in November a very light covering of thoroughly rotted manure may be scattered. This should be dug into the soil. Heavy applications of rotted stable manure containing urine should not be applied to fall planted roses. A heavy application of leaf soil may, however, be given. Newly planted roses are incapable of absorbing the food solutions until they make new feeding roots and become established.

Rose beds or borders should not be made on low lying portions of the garden, or in positions where drainage is not good. Wet and soggy soil conditions in spring may mean failure. It is in these positions and under the latter condition that the soil will become sour and acid through non-aeration. Roses will not live long in such soils.

Planting Methods.

Careful planting of the rose is essential. All broken root fibres should be cut away, and all plants with badly mutilated roots be rejected. The holes should be made large enough to

All the roses shown above were planted on December 15, 1914. They should have been planted in November, but were delayed by war conditions in transportation. Both hybrid perpetuals and hybrid teas are here, and not one has been lost during the past two years.

Perfection climbing rose, 19 feet high. (Photo by J. M. Hull, Hamilton, Ont.)

accommodate the roots when fully spread out and extended. The plant should be set in the center of the hole, and its roots should radiate toward the circumference, like the spokes of a wheel from the hub, which in this case is the stem. The roots should not be bunched or crowded in any way. Careless and ignorant methods of planting are responsible for many failures. With the hand fine soil should now be scattered between and above the roots, and the root fibres be straightened or raised, as necessary. If the plant is moved upward and downward gently the soil particles will sift between and settle firmly around the roots. When these are substantially covered the remaining soil may be filled in with the spade. The surface should then be tramped. After planting, a thorough watering should be given. At this time it is proper to shorten any growth that is longer than two feet to this length.

The depth to plant roses is about one inch deeper than the old soil mark on their stems. This mark is easy to detect, as usually the portion below the soil is a yellowish brown, while the aerial portions are green. If the plants bear the swollen portion characteristic of budded roses, plant them an inch deeper than the "graft."

Roses should never be left exposed to sun or wind. Should any drying of the roots be apparent, they should be immersed in water for a time before planting. If received in a dried out condition from the grower or agent, the green aerial growth should be carefully examined. If this shows marked signs of bark wrinkling or corrugation cut one or two of the most prominent stems. Should a brown ring be apparent just under the bark, it is a bad sign and indicates decay of the cambium or bark forming layer.

According to their vigor roses are planted at greater or less distance apart. The weaker growing and less vigorous hybrid teas may be planted two feet apart. The strong growing hybrid perpetuals three feet. If, however, that excellent method of culture, namely, the bending down of the stems and securing them to stakes, is to be practised, four feet apart for hybrid perpetuals is not too much. This method cannot be put into practice until the second year after planting.

The beds of fall planted roses must be protected during winter. A covering of straw, strawy litter from the stables, half decayed leaves, or even hay, may be used. A heavy dressing of rotted stable manure should not be given the first year. The stems of the plants should also be protected. Straw or hay tied around or piled loosely over these will suffice. The protective covering should not be so heavy as to entirely prevent the access of air to root or branch (rotted manure does not favor access of air to the roots). A mulch is given to protect, not to smother, and its purpose briefly is to act as a non-conductor or insulating agent. Between the straws or fibres of the mulch a more or less neutral film or cushion of air is always present. A mulch acts like a thermos bottle. Sudden changes in extremes of heat and cold are in degree absorbed by this film. In winter the cold air does not get in rapidly. The relatively warmer air does get out readily. In spring this condition is reversed, therefore the mulch must be removed as early as possible consistent with safety. Frost will thus more quickly leave the ground, and favor normal growth.

Objection has been taken to the use of straw as a protective mulch on the ground that it harbors mice. If, after the first lasting snow, precaution is taken to lightly tramp the mulch access of mice will be prevented, as they cannot burrow or even live in it after it is hardened by frost.

During fall, stable manure may be forked into all well established beds of roses if a fertilizer is necessary. A sprinkling of bone meal will also be of great value, being of slow decomposition a fall application is to be preferred to one in spring. These fertilizers may be worked into the soil during September, October, or November. Mulches for protection, however, should not be given to any roses whether newly planted or well established until frost has lightly but permanently encrusted the ground. When the surface of the latter is in a frozen condition, mice cannot burrow into it. So with a frozen soil and frozen mulch they cannot do much, if any, injury to the roses.

Sometimes it is necessary to protect the stem of climbing roses. These may be taken from their supports, and be laid in a bed of clean straw and lightly covered with same. They may also be protected by covering them with two thicknesses of burlap on their supports. Burlap lightly wound and tied around hybrid perpetuals and hybrid teas is also a good protection wherever possible to obtain it.

Making the Garden Live Longer

Geo. Baldwin, F.R.H.S.

OF all the months in the year November is the one in which fresh vegetables and flowers are most acceptable. Provided proper care and attention has been given, there is no reason why fresh vegetables this year in November cannot be had. Too many would-be gardeners sit down as soon as the first frost comes along, instead of having protection material on hand. They thus lose three or four weeks of good growing weather. We must not be content to watch plants and vegetables, on which we have spent a lot of time during the summer, get nipped. We must be alert. We know pretty well when to expect a frost from the weather forecasts in our local papers. Be prepared with burlap, old clothes, straw or papers and use as frost shields to keep the garden fresh through October and most of November.

"Gain time," should be a slogan of the amateur gardener. This can be done with just a little forethought and energy. Don't forget that after November 1st bulbs begin to deteriorate, so that not a day should be lost in planting bulbs which were not planted last month for outside growth. Remember that the longer time plants have for rooting, the better the flowers. This also applies to bulbs indoors for Christmas blooming. If you have some trees under which no grass will grow, plant a lot of crocuses, daffodils, snow-drops and scillas. They will stay there for years and multiply. This is also the time to plant lily bulbs—do not wait until spring.

If you want to force asparagus and rhubarb for Christmas, get busy and make a bed in the cellar. Roots especially for this purpose can be obtained from the seedsmen. If you are eager to get the earliest of sweet peas, prepare a place for them now.

Here is a simple plan (and I know from experience a good one) for keeping celery in perfect condition throughout the entire winter. Prepare now by topping the plants severely so that they will occupy as little room as possible. In a week the plants will begin to grow again. As soon as freezing weather starts dig up the plants with as much earth as possible. Replant in the cold-frame after dipping each root in a pail of water, placing the plants in a row closely together, after tying the stalks about the middle. As each row is planted it is covered firmly nearly to the top with ordinary garden soil, keeping the tops dry at all times. As soon as all are set in, place the sash on top, ventilating every day in fine weather, and covering at nights—and during cold, freezing days with matting. You will then have celery fit to set before a King until mid-March.

Prepare now your compost heap for next year's use in a corner of the garden. Dig a hole four feet wide, eight feet long, and three feet deep, put in a layer of cow-manure, then a layer of leaves (oak, chestnut, or beech are the best), then a layer of earth, then a layer of horse-manure, then leaves, earth and manure. Pile it up above ground according to quantity required, pouring lots of water on it, and covering the whole with earth. You will then have a good compost for next season's use.

Prepare Your Rose Beds.

This summer you were probably delighted with the rose beds in some of your friends', or in strangers' gardens. You then and there made up your mind that you were going to have one of your own, and perhaps ordered your stock of rose bushes to be delivered the first week in April. Don't let it go at that, but prepare the bed at once to receive them. Trench deeply, eighteen inches at least, putting old bricks, stone, or bottles in the bottom, then a goodly quantity of well decayed manure, and cover this to a depth of six inches with good garden soil. Put a heavy coating of manure on top as a mulch to be removed as soon as the rose bushes arrive.

These dahlias and petunias would do credit to any garden. They were grown by Mr. L. W. Myers, Stratford, Ont.

Winter Protection of Tender Plants

Wm. Allan, Toronto, Ont.

DIFFERENT authorities entertain different opinions as to the need of protection for plants. The covering of the majority of biennials and perennials is absolutely necessary. We cannot adopt the same covering for every plant, for plants vary as much in their constitution as most of the human race. Some growers cover with long litter, others with warm stable manure, some leaves, and a great number with an accumulation of rubbish of all kinds. With quite a number the results have been most disastrous.

Having devoted time and study to this operation, a word or two on the subject may not be amiss. In the majority of instances nature's covering should be used where it is possible. The accumulation of leaves just as they fall is a lesson which would amply repay all true lovers of plants for a little careful study. I have covered biennials such as pansies, forget-me-nots and campanulas with long litter and have covered them with dry leaves with this result: The plants covered with leaves pulled through the winter with splendid results. Of those covered with long litter seventy-five per cent. were lost. I particularly noticed this result last season. Hollyhoeks, anchusa nalica, foxgloves and pansies were left to take care of themselves, but nature coming to the rescue had pity on them and covered all with leaves. Every plant survived the winter and flowered beautifully this past season. Others of the same varieties were carefully covered with long litter and seventy-five per cent. were lost. I could give numerous instances where nature's covering proved to be most effectual.

A fall planted rose, Baron Rothschild, second year after planting. One of its stems has been bent and tied to a stake. This is an excellent method of growing many of the more vigorous hybrid perpetuals. Photo by H. J. Moore.

Those anxious to preserve

plant treasures should not be in too great a hurry. Let your plants freeze up, then cover with a few dry leaves. To keep the leaves from blowing away place a few light branches of any kind on top. When cold frames are at hand they can be used to great advantage. Pansies, canterbury bells, forget-me-nots, and such like can be lifted and planted in the frames, then covered with sashes.

Nothing is more absurd than to cover or envelop roses in straw. It only means comfortable quarters for mice and rats. The finest and only protection roses should receive is the hilling of the soil over the crown of each plant, so that fully ten or twelve inches of the entire plant is under the soil. This operation must be done before the ground freezes too hard. After the ground is thoroughly frozen leaves or long litter can be used to advantage. Some advocate burying entirely the choicer varieties of teas and hybrid teas. Climbing roses are best taken from the trellis and laid flat on the ground. Cover with at least ten or twelve inches of soil. In the spring all the wood should be in good condition.

I would strongly advise all lovers of plants, particularly such varieties as polyanthus and auriculas, not to be in too great a hurry to cover them. Let nature have her way for a time. Wait until the plants are frozen in the soil. Then administer your covering with whatever materials you have at your disposal. To prevent the high winds disturbing the work place a few branches on top as previously advised.

One will naturally be most anxious after the long and dreary winter to find what shape their plants are in, and will, on the first fine day in spring, hasten to take off the winter covering. This is a great mistake. Thousands of choice and valuable plants are lost every season through too great hurry in uncovering them, and more perhaps than through any other cause. Wait until the ground is thoroughly frozen before protecting your plants, so that the sun cannot reach them prematurely and make them start into growth ahead of time. Bright, sunny weather in the months of February and March hasten premature growth should the plants happen to be unprotected. Such weather does more injury to the plants than the most severe cold would.

There are some perennials, such as tritomas and incarvillias, which are best lifted and wintered in a cold cellar. Be careful that the plants do not become too dry. Paconies of all kinds, tree, singles and doubles, have been wintered successfully, the only covering being their own foliage.

Rearranging the Flower Borders

EVERY year the border of hardy flowers becomes a more important feature in the garden scheme. This is as it should be, for it is a really artistic and decorative asset. To begin with, let it be well placed, well prepared, and well planted. Some people seem to think that a hardy border, once planted, is no more trouble for years. This is not the case. When a hardy

Harmony as expressed by the effective setting to this boulevard bridge. (Photo by H. J. Moore.)

border has been in existence, say for three years, it will be all the better for some drastic work upon it. Division of plants will be necessary, and while the border is being disturbed, manure and additional soil will be very beneficial. One never quite knows why a border should need this additional soil, but it does. It would seem as if the soil, after a time, diminishes, and it is perhaps even more important to replenish this than to give manure, though this, of course, in time becomes soil.

Now is a good time to renew a border, and in apportioning the plants let us keep an important matter in mind. Do not let us get tall or semi-tall plants too near the front. This is one of the faults often noticed in a novice's work. It spoils the effect; the sense of space which a border ought to show is lost. It is not enough to leave room for a narrow edging, and close behind that to plant subjects of three feet or more.

An enthusiastic gardener once told me that although his garden was only a small one, he varied it every year by some alteration or addition. This added very much to his own interest in it and also to that of his friends. One way of making a slight alteration is to give the plants in a border, when they are raised for division, new places. This not only makes a variation, but is a good thing for the plants themselves. With many of them, new soil improves their growth. There are plants which are veritably old friends, and if we like to keep them where they are, well and good, but this does not apply to all.

Avoid Mechanical Effects.

A border of hardy plants is more artistic, more satisfying to the eye, when planted in groups instead of rows—a line of yellow, another of crimson, and so on, gives a mechanical effect similar to that of the carpet-bedding. When it appears year after year, the same row in the same old place, one seems to hunger for a change. As far as possible, let plants grow as if they grew there by chance.

A simple way to effect a little alteration in the border is to purchase a few new plants—something we have not grown before. In doing this, we must be careful to get plants suitable for the aspect and the soil that we can give them. A few lily bulbs, or one or two plants of the Japanese rose (rosa rugosa), either alba or rubra, are good additions, or better still a plant or two of each. These roses, planted about three feet apart soon make a beautiful hedge. The foliage is a dark, glossy green, the flowers single and strongly perfumed, are followed by large, rich orange berries. No one who plants a few bushes of this beautiful rose will regret it after a few years' time. The back of a border is a very suitable place.

Do not forget the honeysuckle. The fragrant upright honeysuckle (Fragrantissima) is one of the best. It will soon cover an old dead shrub or hide an unsightly piece of fencing. Then there are the lilacs, and what more welcome flower in spring than a bunch of lovely lilac?

In planting a border that is to make a display over as long a period as possible, the summer display is of the greater importance. The whole trend of our thoughts on the subject makes us look for radiant, lavish color at this season. That such a border has been beautiful during spring, or will be beautiful in the autumn, is not enough. It must be a mass of bloom during the summer. But there is this to be said for our comfort—if we do not mind the trouble of it, many of the spring-flowering plants can be lifted after they have flowered and given temporary

quarters for the summer, and so leave spaces for the later flowering plants. If we realize this, it may help us to plant accordingly.

Just a reminder here to any who have wallflowers in their garden from seed last spring. These plants will not have flowered this summer. Lift them now with as much soil as can be kept around their roots and place them in vases, pots or fruit baskets. These plants, kept in a window where there is plenty of light, and well watered, will bloom in profusion next April and May. As soon as the weather permits, they can be set out in the border, even when in bloom. Do not neglect the watering. Give at least once a week.—B. C. T.

Mulching Strawberries

H. S. Fry, B.S.A., O.A.C., Guelph

MANY growers of strawberries make a practice of mulching their plantations in the fall to bring the plants through the winter in the best of condition. Any material such as leaves, old hay, straw or strawy manure, is suitable for this purpose. Manure is the most common mulching material used, since it acts both as a mulching material and a fertilizer. In most of Ontario, the mulch is applied in late fall as soon as the soil has been frozen hard enough to bear the weight of team and wagon. The mulch is spread over the surface of the ground, about three inches thick, and is removed in the spring as soon as the leaves of the strawberry plants begin to show a little yellow, as a result of lack of sunlight.

In Ontario strawberries should always be mulched, even in the Niagara District. The principal reason for mulching is to protect the crowns of the plants from injury as a result of heaving by frost or alternate freezing and thawing. In some places where the winter is less severe than in Ontario the mulch is of value in autumn before the ground gets frozen solid, but in Ontario it is of greatest value about March, when we usually have a considerable amount of freezing and thawing before spring sets in.

Strawy manure is the best material for Ontario strawberry growers to use, as it is easier to obtain than other materials and has a fertilizer value besides. It can be applied very easily with a manure spreader if it is not too long, and in such a case the spreader should be set to apply about fifteen tons to the acre.

It has been mentioned that this mulch should be removed in the spring before the leaves are unnecessarily checked by lack of sunlight. A good practice is to merely pull the mulch between the rows of strawberries and leave it there so that it may act as a mulch for the soil, and as a means whereby the fruit may be kept from getting dirty during the picking season. Providing the soil is in good condition and the manure is not too full of weed seeds, a mulch of this kind will conserve soil moisture just as well as if the ground were kept cultivated, while the fruit can be kept cleaner than if the soil were being constantly stirred.

Strawberry growers also make considerable use of this mulch in districts where it is desirable to prolong the season to secure better prices.

In view of the benefits to be derived from mulching it is to be recognized as a very desirable practice, especially where tender varieties are being grown. It may be well to mention, however, that in very cold districts where the snowfall is abundant and serves as a cover for the soil for four or five months in the year without melting, the mulch need not be as heavy as in districts with only light snowfall, since a heavy mulch in addition to a heavy snowfall might be sufficient to smother the plants.

QUESTION BOX

Prof. J. W. Crow, O.A.C.

Some time ago I brought from Quebec (City) a number of Hautbois strawberry plants. They bloom slightly later than the ordinary plants, and bloom heavily. They present a beautiful sight in bloom, but their flowers must be imperfect, for they do not set a single fruit. The blossoms simply wither on the stem. Could you suggest a variety that could be planted alongside for cross fertilization?

I have also been trying a plant called the Strawberry-Raspberry—originated, I am told, by Burbank. This also blooms liberally but has set no fruit. I am told by the nurseryman from whom I procured it that it has a perfect flower. As it has failed to set a single fruit, the blossoms drying up on the stem, it would also appear to be imperfect. I have seen the fruit offered for sale elsewhere, so it can be induced to fruit. I should be glad to have the opinion of some one who knows the plant and its fruit as I am only a beginner with small fruits.—J. R. O.

I am inclined to think the trouble is either frost or an unfavorable soil. If the strawberry-raspberry fails to fruit, the difficulty probably is not in pollenation, because there is no other plant needed to pollenize the strawberry-raspberry. Perhaps you are taking too good care of them, and forcing the growth of the plant too much. I am not sure whether this is possible with strawberry-raspberry, because I have had very little experience with them, but should expect it would be.

The Hautbois strawberry (Fragaria moschata) is dioecious, that is to say, some of the plants are male and others are female. It is necessary to have both types before fruit will be produced.

To have strawberries like these next season protect your beds by mulching thoroughly this fall. Spring thaws are apt to prove disastrous when this is not done.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

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1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests. The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, and of The Canadian Horticulturist and Beekeeper, $1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising rates, $1.40 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December 1915. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 13,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1915	11,158	August, 1915	10,294
February, 1915	10,942	September, 1915	10,057
March, 1915	10,854	October, 1915	10,017
April, 1915	10,917	November, 1915	9,704
May, 1915	10,927	December, 1915	9,253
June, 1915	10,329		
July, 1915	10,448	Total	124,920

Average each issue in 1907 6,527
Average each issue in 1915 10,410

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not apply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honorable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed

THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

A Toronto Office

Commencing with this issue The Canadian Horticulturist will be mailed in connection with our Toronto office, although the Peterboro' office of the company will be continued, and all correspondence will be conducted from Peterboro', as usual. The new arrangement, according to post office regulations, necessitates the word Toronto appearing on our front cover. The change will facilitate the mailing of The Canadian Horticulturist and will ensure each issue reaching our subscribers more promptly. The Canadian Horticulturist is published in connection with another well known publication, Farm and Dairy. For this reason the existence of offices in Peterboro as well as in Toronto has many advantages.

Commencing with last month's issue of The Canadian Horticulturist the cost of the paper used in each issue was practically doubled owing to a heavy advance made by the paper mills in the cost of book paper. We are advised that there is no certainty that the present price will continue long and so far have not been able to obtain paper to last us for more than the next four months. The paper situation is a very serious one. A similar advance is contemplated in the cost of news stock, the grade of paper used in most newspapers. Should it go into effect it will mean an increased expenditure to the publishers of newspapers in Canada of $2,500,000 a year. The Dominion Government has been requested to investigate this condition. The paper manufacturers are endeavoring to see if they can furnish papers like The Canadian Horticulturist with a grade of stock somewhat similar to that which has been used and at a price which will not be too excessive. The results of this investigation will not be known for some time. This is one of the effects that the war is beginning to have on industry.

The Paper Situation

The paper situation now facing every publisher is so acute as to threaten the very existence of many papers and magazines. No doubt many causes have been working to force the price of paper skyward since the war began, but one cause stands out above the others, for the reason that it is preventable. This is the tremendous destruction of spruce and balsam suitable for paper-making, by preventable forest fires.

A great deal has been said on the subject of fires, but the public does not awaken to the awfulness of the waste going on every year. The tremendous toll in human life and in property, both private and public, taken by this agency shocks us, but we do absolutely nothing to prevent the recurrence of these fires. Prominent government officials and college professors discourse learnedly of conservation, while at the same time one of our greatest natural resources is being devoured by this fiery monster. The detached attitude taken by our governments in the matter of forest protection amounts almost to criminal negligence. The lack of protection has reduced the near-at-home bodies of pulpwood far more than the actual cut of logs. In the Northern Ontario fire of last summer, 1,200 square miles of paper-making materials were destroyed. In the same fire an Ontario paper mill lost 400,000 cords of wood ready piled in the yard.

Surely, now that newspapers and magazines have begun to feel the pinch resulting from this waste, they at least will instigate an agitation for some adequate measure to conserve for the people this the greatest natural source of wealth in Canada—the forest. If the wood near the mills is destroyed, the raw material must be hauled from farther away. Every additional mile the wood is hauled has an effect in forcing up the price of paper. Let us make a determined effort to induce our governments, the natural guardians of our resources, to provide protection for our forests.

Orchard Diseases

The market for Ontario apples is exceptionally strong this year. Never have prices for good fruit been better. This condition has been strengthened by the increased outlet for Ontario apples found among the grain growers in the Canadian West. But we lack good fruit to fill this market. Ontario apples will grade largely No. 3. The class of fruit going out of Ontario is certainly not a good advertisement for our industry. One of the farmers' organizations of Alberta gave as a reason for buying United States apples that, "The Ontario apple crop is much below the average both in quality and yield." But why?

Many fruit growers will blame their poor crops on the season. The season is partly responsible, but the fact that some men who looked after their orchards have fair crops of good fruit, while their neighbors, who neglected their trees have reaped crops which in an ordinary year would be worthless, goes to prove that the greater responsibility in many cases rests with the grower himself. It is the height of folly for a man to spend money planting and cultivating an orchard, and then, when it has come into bearing, lose the profit on his crop by trying to save a little time by neglecting to spray in the spring. As has been pointed out before, it takes just as good land, just as good trees and just as good cultivation to grow a barrel of No. 3's as a barrel of No. 1's. The difference may not be in size but in scabbiness. It costs as much to pick the No. 3's, the freight rates are the same, as are prices of packages, but the price is different. The difference in prices quoted in the agreement between the Ontario fruit growers and the prairie farmers varies from seventy-five cents to one dollar and seventy-five cents a barrel. Let us take the average at $1.00. What does this extra dollar a barrel represent to the farmer? It represents the return on the outlay for his spraying operations. When this dollar is multiplied by a thousand or more barrels from one orchard, it can be seen what a tremendously big wage is paid to the careful, systematic sprayer for his spring work. It is not only a matter of extra profits to the fruit grower, but often constitutes the difference in profit and loss to him.

The fight of the orchardist against disease in his orchard, creates a serious situation. This year apple scab turned profit into loss. In some parts of Ontario San Jose scale has killed huge numbers of bearing apple trees, and is still continuing its ravages unchecked. Peach Yellows and Little Peach a few years ago threatened the very existence of peach growing in Canada. Pear Psylla has consumed the profits in many orchards this year. Together with all this arises the problem of our markets. Do we want our fruit to become known as being good, clean stuff, or the reverse? Every barrel of low quality apples going out of Ontario helps to prevent more apples being bought from this Province. With the lessons of this season fresh in our minds, Ontario orchardists are able to see that even when other spring work

is pressing we cannot afford to neglect careful spraying. Honest grading this fall, even when it hurts to do it, will assist in preventing any reaction in the future because of the unusual percentage of low grade fruit that will be placed on the market. The responsibility of doing this rests upon us.

Bird Protection

Fruit growers are directly interested in the treaty recently concluded between Canada and the United States providing for the cooperation of the two countries in protecting migratory insect-eating birds. By this treaty an absolutely close season throughout the year is imposed on all perching birds which feed entirely or chiefly on insects. Except for scientific or propagating purposes our Canadian songsters, their eggs or their nests may not be taken at any time.

As civilization has progressed, bringing more and more land under cultivation, species of insects which formerly eked out a precarious existence on wild plants have migrated to the cultivated fields, finding the plants there more suited to their development. Under these new and more favorable conditions many species which were a few years ago comparatively negligible in number have now increased tremendously. Perhaps the more important factor, however, in the enormous increase in insect life has been the wholesale slaughter of our insect-eating birds. Birds are the natural enemies of insects.

Some one has likened nature to a spider's web. If one strand be touched, however lightly, the vibration is felt to the farthest corner. Wherever a man has tried to regulate nature he has generally only made a failure of things. Agricultural history during the last century is replete with instances where farmers have become exasperated with birds for taking some of their crop. Again and again they have had laws passed providing for the slaughter of certain species of birds. In every case the tremendous increase in the number of insects which has resulted has brought about serious conditions. It has only been after birds were brought back or a new species introduced into the section that the proper balance has been again restored.

There is no class of men who are more interested in the control of insects than the fruit grower. During the last few years insects which prey on the orchard have increased tremendously. Every grower is interested in the control. It is therefore up to the growers to see that the law protecting birds, the natural enemies of insects, is properly enforced in their district. Insects decrease in almost the exact proportion that birds increase.

Horticultural Options

Each year the officers of horticultural societies have to struggle with the problem of what premiums they shall offer to their members. Some societies, where there are men who are well posted in the ordering of horticultural stock and who have time to give to the matter, are more successful than others not so well favored. Arrangements might well be made either through the Ontario Horticultural Association or through the Superintendent of Horticultural Societies for Ontario to obtain an extra supply of the premium lists of each society for distribution among other societies. This would give every society an opportunity to see what other societies were doing. Why not discuss this at the approaching convention of the Ontario Horticultural Association.

SOCIETY NOTES

Ontario Horticultural Convention

The anuual convention of the Ontario Horticultural Association will be held in the Railway Committee Rooms, Parliament Buildings, Toronto, Wednesday and Thursday, November 22nd and 23rd. The following programme has been prepared:

"Birds in Relation to Horticulture," W. E. Saunders, London; "The Diseases of Roses," Dr. L. M. Massey, Cornell University; "Color Scheme for Formal Flower Beds," Mr. Marshall, Queen's Park, Toronto; "Vines and Creepers," Mr. W. T. Macoun, Ottawa; "Hardy Aster and Other Decorative Varieties of Perennials," Miss M. E. Blacklock, Meadowvale; "Press Work in Relation to Horticulture," Mrs. Potts, Hamilton; "Boy Scout Movement in Connection with Horticulture," J. Garfield Gibson, Toronto.

The attendance at the convention will likely be large. Delegates will be able to obtain reduced rates over the railways from all points in Ontario on the certificate plan. The proceedings are open to the public.

Manitoba

Jas. A. Neilson, M.A.C., Winnipeg, Man.

During the past couple of months the writer had the privilege of acting as judge of the horticultural exhibits at several school and agricultural exhibitions held in various parts of Manitoba, and was agreeably surprised by the quality, quantity and variety of vegetables which can be successfully grown in this province. As a vegetable producing country Manitoba need not suffer by comparison with any other province in Canada. In attempting to judge vegetables I encountered a difficulty which many others have also met, i.e., a difference in judging standards. Through not having a well-recognized standard of perfection for the different kinds of vegetables, and for the several classes in each kind, there has been some difficulty in giving satisfaction to the general public, and to the exhibitors. As a means of overcoming this difficulty, a circular letter has been sent to several of the leading vegetable gardeners throughout Manitoba, asking their cooperation in the creation of a standard of perfection for vegetables. When this data has been accumulated it will be synopsized and distributed to the various fair boards throughout the province, with the object of creating a higher standard of vegetable exhibits.

The Horticultural societies in several districts of Manitoba are doing a highly commendable work in holding a "Home Grounds Contest." Several fairly large prizes are given for the best kept home grounds. The contestants are generally numerous and the competition keen. This work indicates a growing realization of the value of having beautiful surroundings, and signifies that many people are beginning to realize that "Man shall not live by bread alone." Every citizen of Canada should do all in his or her power to make the country more beautiful, as well as more fruitful.

Hamilton

Members of the Hamilton Horticultural Society made a most successful pilgrimage this year to Grimsby, visiting Dr. Clark's "Tulpenvelden," where some 60,000 of the very best tulips (over 200 named varieties) were to be studied and enjoyed. Virgil said, "Praise the farm of great extent; cultivate the small one." As many of the visiting members were owners of the small city backyard gardens, they, the more readily, followed this advice, and acknowledged freely their great indebtedness to Dr. Clark for thus affording the privilege of seeing and selecting from his splendid collection. In one patch it was the form of the cup of the flower which attracted attention first, and drew forth words of admiration; in another it was the wonderful sheen exhibited on the petals; again it was the opalescent tints or other markings or colorings, but whatever the leading feature—for each patch had its leading feature—each deserved special attention and its share of praise.

Here were Darwins, Cottage, Parrot and Rembrandts, together with a small section devoted to such tulips as Persica (the Persian variety), a species bearing several flowers on a stem, in color yellow to golden-brown; Pulchella, with its suggestively crocus-like flowers, and Saxatilis, rose colored with a yellow base. To study this section carefully was to be clearly impressed with what the other sections of wonderful bloom meant. If anything could teach a deeper respect for the art of gardening it was this. The Parrot or Dragon tulips were greatly admired by some, and were to be seen in the perfection of their brilliantly-colored flowers, which are of very large size, with petals deeply slashed or toothed.

Fragrant tulips, too, were in evidence. The parent of these—the tulip Saviolens—was discovered growing wild in Europe about 300 years ago. It is claimed that the class known as Duc van Thol are descended from this type, though hybridization has made it difficult to distinguish too definitely. It must be admitted, however, that some tulips are deliciously fragrant.

St. Catharines

It has been the aim of our society for a number of years past to encourage the culture of roses among our citizens. The result has been that St. Catharines is developing a splendid reputation as a rose-growing city. Our rose exhibitions, held every June since 1904, are unsurpassed in Canada.

We have in past years paid more attention to climbing roses and hybrid perpetual roses, believing them to be more suited climatically for growing in St. Catharines. Experience has shown that the hybrid tea rose can be grown here satisfactorily. Its longer period of bloom and its greater beauty have encouraged the society to arrange options of H. T. roses for distribution this fall.

By this arrangement we hope that many rose-lovers of the city may be able to enlarge their collections of roses by a choice from the twenty options of H. T. roses which we are offering.

Port Hope

The Port Hope Society has been making it a point, during its distribution of premiums, to give not only bulbs, but a few shrubs every year to insure permanency. In the past we have assisted in beautifying the grounds of hospitals, as well as caring for several plots of flowers around the town. Our next spring's work is the laying out and improvement of the grounds of the new hospital, and we expect at some future date to make the school grounds more attractive.

Advertising Apples on an Ambitious Scale

THE success which has attended the apple and other fruit advertising campaigns that have been conducted in Canada during the past couple of years indicates that larger and more expensive campaigns are likely to be conducted in the future. This fall a national campaign for the popularizing of apples as a food and as a means of increasing both consumption and prices is being launched in the United States by the Northwestern Fruit Exchange of Seattle. The details for this campaign have been worked out with great minuteness and it is attracting wide attention on the other side of the line. The following particulars concerning it were given in a recent issue of Printers' Ink:

Last year the Northwestern Fruit Exchange conducted a small experimental campaign on Skookum apples in New York. About $3,500 was invested, mostly in the elevated and subway. A small sum was similarly used the year before. Encouraged by the striking success of this advertising, the Exchange is now starting a campaign that will reach all over the United States.

The Northwestern Fruit Exchange is the selling agency for about twenty-six local growers' associations, and claims to be the largest shipper of box apples in the world. From its inception it has been educating the grower in better methods of picking, grading and packing the fruit. It has been gradually building up markets and getting ready to make a wide appeal to the consumer through advertising.

It is estimated that the Exchange will have in the neighborhood of 1,100 cars of Skookum apples to market this year. At about 640 boxes to the car, the total output of the fruit to be sold under the Skookum brand will run well over 700,000 boxes. Of course an estimate made while the apples are still on the trees cannot be accurate. The number of cars may greatly exceed 1,100, but it is unlikely that it will be any less. These figures are referred to because they determine the advertising appropriation, which is ten cents on each box. Therefore, the Exchange will have approximately $70,000 to put into advertising and sales promotion. The amount may be considerably larger should the number of boxes of Skookums exceed the estimate. The uncertainty as to the exact sum that will be available, makes it impossible to lay out the campaign in every detail any great time in advance of the season.

Judging from past results the advertising of apples seems to be a good way to invest money with the certainty of getting a high rate of interest on it. In writing about the results of previous advertising, W. F. Gwin, vice-president and general manager of the Exchange, said:

"We are pleased to state that the result of the campaign was very gratifying, and we were able not only to recover the money put into advertising, but a substantial premium."

What he means by "premium" is that as a result of the publicity, Skookum apples sold for more than the market—in some cases as much as thirty-five cents a box. Thus the advertising cost was recovered and a substantial amount besides. Continuing, Mr. Gwin said:

"We feel that we have accomplished something truly remarkable in making New York City 'sit up and take notice' with such a comparatively small appropriation. Even by our competitors we have been complimented on the accomplishment of what to experienced advertising men seems an impossible task, i.e., really creating a profound impression upon the metropolitan district of New York with a very small sum of money."

Advertising will claim the bulk of the appropriation, although a few thousand dollars will be expended in sales effort to supplement the publicity. Fruit inspection will cost $3,000, which also has to come out of the advertising fund. Only "Extra Fancy" apples will be put up under the Skookum brand. According to the Northwest Standard Grading Rules, adopted at Spokane in December, 1915, this grade of apples is defined as "sound, smooth, mature, clean, hand-picked, well formed apples only, free from all insect pests, diseases, blemishes, bruises, and other physical injuries, scald, scab, scale, dry or bitter rot, worms, worm sting, worm holes, spray burn, limb rub, visible water core, skin puncture or skin broken at stem."

They must also meet certain definite requirements as to color. In spending money to make sure that all apples packed under the Skookum label are up to the established standard in quality and appearance, the Exchange is observing the first principle of advertising success—having the product right. It is an example of the thoroughness that characterizes every detail of the campaign.

Specialty salesmen will be used in some sections to back up and supplement the efforts of the jobbers' men. Fruit jobbers, in many places, do not go out aggressively after business. They let the growers and other dealers in the commodity come to them for their requirements. It is to make sure that Skookum apples will not be neglected in those localities where wholesalers are in the habit of taking it easy, that salesmen are to be employed. The cost of these representatives will be taken out of the appropriation, but the amount will not be large. Anyway it is a very necessary expenditure, as it will bolster up the weak spots in distribution, and make more certain the success of the advertising. One of the important phases of the work that the salesmen are expected to accomplish is to get hotels and restaurants to list Skookums on their menu cards.

The campaign is well rounded out. It ramifies in many directions and connects all the factors concerned. It is probably one of the most complete drives that has ever been made in the merchandising of a fruit. Magazines, newspapers, billboards, street cars, trade papers, novelties, hangers, premiums, display matter, poster stamps, window stickers, direct literature and dealer electros are to be used.

Full-page advertisements in colors will appear in quite an array of magazines. The fruit will be temptingly displayed in its own natural colors. Much of the copy is based on the health appeal. The healthfulness of apples is brought out, and backed up with statements from authorities. The quality of the apples is described. The reader is told about the sanitary conditions under which they are picked and packed. The magazine copy, as in fact all of the advertising, shows the trade-mark of the fruit, which consists of a grinning American aborigine making goo-goo eyes at one or more Skookum apples in a manner that by comparison would make Sunny Jim look like a Gloomy Gus.

"Skookum" is the word that the Indian used when he wished to express his delight. It is equivalent to our slang phrase "bully." Readers are told always to keep their eyes peeled for this Red Man. The address of the Eastern Division of the Exchange, in New York, and not the address of the executive offices in Seattle, is signed to the advertisements. Inquiries will be followed up from New York. The campaign is in charge of the Mutual Service Corporation.

Street-car advertising will be used to a considerable extent. A wide variety of cards of compelling variety have been prepared. Something new in this line will be introduced. One of the cards shows several well-known advertising characters, such as Velvet Joe, Cream of Wheat Chef, the Little Fairy, the Dutch Cleanser Maid and many others. Among them beams the smiling face of the Skookum Indian. The idea is to get the reader to pick it out from the rest, and also to associate this new character with those that have been established in popular favor for years. Those who are in the habit of reading the funny papers, will recognize an old friend on another card, headed "Hey!

By sorting his apples in the orchard, Mr. James Ellis, Ancaster, Ont., not only saves valuable time, but also gets his fruit packed with a minimum number of bruises.

Skinny," and showing a delighted youth with his teeth in a Skookum. The cards have already started to appear in the cars. Details as to the poster and newspaper advertising have not been perfected as yet, although it is certain that these mediums will figure prominently in the campaign. Definite schedules cannot be made up beforehand, as already explained, because of the uncertainty as to the sum of the final appropriation.

Plans For Reaching Dealers.

The jobber's name will appear in most of the local advertising. This is for the benefit of the retailer who may be interested in the proposition. It will let him know where he can get in on the campaign by stocking up. In the magazine advertisements, also, a line or two at the bottom of the copy, is directed to the merchant. He is urged to write for particulars. In the newspaper advertising it is the intention to give the names of dealers in that community.

An elaborate folder, telling all about the methods that are being used to merchandise Skookum apples is going out to a selected list of fruit dealers. In it are illustrated and described all the different phases of the campaign. It shows fruiterers all that is being done to help them build up a profitable quality trade on apples. It is a convincing exposition of facts that should enthuse even the most phlegmatic retailer and make him realize that he is being offered real cooperation in apple selling. The folder contains an order blank in coupon form, which dealers can use while the mood is on them, and mail to their jobbers.

The merchant is told how to make several attractive window displays. One of them is illustrated in the broadside. It is a "stunner," and at the same time very easy to make. This window will surely get attention and unquestionably will have such an effect on the dealer's sales that he will be convinced that it pays to take time and go to the trouble of displaying even fruit, "which a feller would think everybody knows and that needn't be dolled up in the window," as one fruiterer expressed it.

In the folder the dealer is told of other selling helps he can have. He is offered poster stamps to put on statements and packages. He is told about decalomania stickers of a pair of apples and of the Indian head, which can be had for the asking. It is suggested that street-car cards make attractive display pieces for a store. He is reminded that he can have a set free of charge.

In the copy to the consumer a booklet and a musical balloon is offered for ten cents. Both these articles are illustrated in the folder. The dealer is told that he can buy quantities of the book, imprinted with his name, at $8.00 a hundred, and the balloons at $2.00 a hundred. A charge is made for these because if they were given free to the dealer, and he were to pass them out in any quantity the cost would be so tremendous that it would eat up the entire appropriation.

The balloon blows out in the shape of a colored apple and contains an advertisement of Skookum on the leaves. Every child will want one, and every time it is seen the thought of a big, red, juicy apple is sure to arise. The book gives 200 ways of using apples, and gives much other information about them that every lover of the fruit would like to know. The twelve different varieties that are put up under the Skookum brand are illustrated in their own colors.

A part of the appropriation is going into the trade papers. Colored four-page inserts are now appearing in grocery publications. The copy is brief. The message to the trade is put across in a few words. A palate-enticing red apple and the titillating Indian are shown, both of which are eye-arresters.

Probably the most original feature of the plan is the methods that are being used to educate people to eat "the right apple at the right time." As already mentioned there are twelve different varieties of Skookums—enough to suit every taste and every month of the year. The purpose of the education in this regard is to make people connoisseurs of apples. Every apple attains its perfection at some certain time of the year. A person may like the Spitzenberg, but not know that it is best when eaten in November, December or January. A winesap, for instance, is a fine apple, but it does not reach the height of its maturity until March, April or May, when most other apples are out of season.

By emphasizing these important facts, consumers will know more about apples, when they are best to eat and that some seasonal variety of the fruit can be obtained every month in the year. This phase of the campaign is brought out interestingly in the advertising. For example, the street-car cards to be used in November illustrate the best apple in that month. The magazine copy shows a bowl of fruit, each piece numbered, so as to give a key to the variety exhibited. At the bottom of one of the advertisements appears this sentence, "The best varieties to eat during September and October are numbers 1, 2 and 4."

In the consumer book the same idea is carried out even more thoroughly. Under the colored photograph of each variety ap-

DOUGLAS GARDENS

OAKVILLE, ONTARIO

Bedding plants, hardy herbaceous perennials and summer flowering bulbs. Planting list for 1916—17 sent on request.

ESTATE OF JOHN CAVERS

DOUGLAS GARDENS, Oakville, Ontario

FOR SALE

An exceptional opportunity to buy a desirable property and going business. The late owner has made a specialty of paeonies and irises.

W. S. DAVIS - Oakville, Ont.

TREES & SHRUBS
BROWN BROTHERS Co.
NURSERYMEN LIMITED
BROWNS NURSERIES, ONT.

SANDER & SONS

ORCHID GROWERS

The Finest Stock in the World

Catalogue on Application

ST. ALBANS - ENGLAND

THE BEEKEEPERS' DIRECTORY

The following beekeepers will be able to supply Bees and Queens in any quantity for the season of 1917.. Order early.

THE ROOT CANADIAN HOUSE,
54-56 Wolseley St., Toronto, Ont.
Full colonies—Nuclei—pound packages. Queens of Canadian or U.S.A. stock. Three banded golden Italians.

F. W. JONES & SON,
Bedford, Que.
Italian bees by the pound, "Made in Canada." also best Italian Queens.

E. E. MOTT
Glenwood, Mich., U.S.A.
My Italians resist well the E. Foul brood. Northern bred, hard, prolific, gentle.

J. P. MOORE,
Morgan, Ky.
Try Moore's Strain Next Year.

J. I. BANKS,
Dowelltown, Tenn.
Italian "Queens of Quality," Not the cheap kind.

H. W. FULMER,
Andalusia, Pa.
Importer and Breeder Gray Caucasian Queens and Bees.

R. V. STEARNS,
Brady, Texas.
My catalogue tells what good Queens I have and how early I can ship bees by the pound.

J. H. M. COOK,
84 Cortland St., New York City.
New Jersey bred Bees and Queens from my home apiary, Essex Co., New Jersey.

M. C. BERRY & CO.,
Hayneville, Ala., U.S.A.
Select bred Italian Queens and swarms of bees in packages.

W. A. LATSHAW CO.,
Clarion, Mich.
Famous Hand-Moore Strain Italian Queens and Bees.

W. R. STIRLING,
Ridgetown, Ont.
Breeder of Fine Italian Queens.

F. L. BARBER,
290 State St., Lowville, N.Y.
Breeder of Italian and Gray Caucasian Queens. Free Circular.

J. A. SIMMONS,
Sabinal, Texas.
Bees by the carload, Italian and Banat Queens.

JOHN G. MILLER,
723 C. St. Corpus Christi, Texas.
Three banded Italians. Circular Free.

H. C. CLEMONS,
R. D. 3, Williamstown, Ky.
Three band Italians, bred for business.

THE DEROY TAYLOR CO.,
Newark, N.Y.
Northern Bred Italian Queens and Bees.

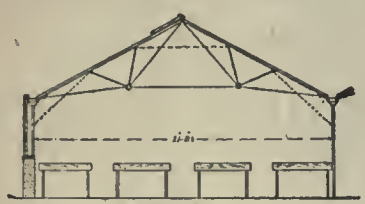
BEESWAX WANTED,
Highest market price paid in cash or supplies.
The Tilison Co., Ltd., Tilisonburg, Ont.

WM. BUEGLASS,
R. R. No. 3, Bright, Ont.
Northern bred Bees.

Queen and Bee Breeders should list their names in our Beekeepers' Directory. Order now for the next five months. Write for special offer.

Preparedness Pays!
Order Now—Money Saved.
BEE BOOKS. BEE SUPPLIES.
Write for Prices.
The Root Canadian House
54-56 Wolseley St. - Toronto, Ont.

BEESWAX
We are in the market for a large quantity of beeswax. If you have any to sell please write us for quotation, mentioning that you have. We pay prompt cash.
F. W. JONES & SON
Beekeepers Supplies BEDFORD, QUE.


STYLE C
This is a New Model for 1915, the result of fifteen years' experience in Greenhouse construction for Canada.
Dotted lines show location of wind-ties that positively prevents vibration of the sash.
Supplied in widths up to 25 feet 2¼ inches from post to post.
KING CONSTRUCTION CO.,
40 Dovercourt Road - Toronto.

FREE LAND
For the SETTLER in
Northern Ontario
Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.
Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.
For full information as to terms, regulations, and settlers rates, write to
H. A. Macdonell
Director of Colonization
Parliament Buildings, TORONTO
HON. G. HOWARD FERGUSON,
Minister of Lands, Forests and Mines.

pears some such explanation as this: "Rome Beauty. Best when eaten in January, February or March. Sprightly and pleasant flavor. Also a champion baker." The distribution of the apples will be regulated so that the fruit most suitable for the month can be obtained in the stores. Thus the apple, the sale of which heretofore has been confined mostly to fall and winter, will become a perennial.

Naturally the question arises as to what is to be done to forestall substitution. Apparently it would be easy for dealers to sell other apples and say they were Skookums. To prevent this a plan, similar to that of Sunkist oranges, is being used. Each apple is done up in a premium wrapper. Certain pieces of silver are given for so many wrappers and so much money. On this wrapper the twelve varieties are listed, together with a terse description of their most salient qualities, and the month when they are at their best. They will tend to make people more intelligent apple buyers. If they buy a Grimes Golden in October and like it, they will see on the wrapper that it will be best to buy some other kind in January. This premium idea is mentioned conspicuously in the consumer advertisements, and in much of the literature. Under the circumstances, substitution on a wide scale is unlikely.

Niagara District Notes

F. G. H. Pattison, Winona, Ont.

DURING October our growers had several surprises and some disappointments. The Elberta peach crop turned out larger than was expected, but the weather caused it to ripen much faster than usual, and to come to the market with a rush. Consequently some of the markets were glutted, and growers did not receive as much as they had expected. Later on, the markets improved again for late peaches of good size and quality, such as Crosby, Longhurst, Late Crawford, Smithson, Smock, and Lemon Tree. One good feature of this season has been that the canning companies have bought more peaches than for the last two years.

Late plums turned out a very satisfactory crop for the growers. They hung on the trees exceptionally well, and brought high prices, 60c to $1.00 a basket being paid for Reine Claudes, Grand Dukes, Monarchs, German and Italian prunes, and late Damsons. The crop at Winona was good.

Bartlett pears also turned out a very good crop, and brought good prices, 40c to 50c a basket was about the usual price. Bartlett's hung unusually well on the trees, and even as late as October 15th some people were still picking them, and finding them firm and good.

The grape crop proved a disappointment. It looked fairly well on the vines, but when it came to be picked only turned out about half the quantity expected. The long continued drought prevented the bunches and the berries from reaching their usual size. In the Niagara District, as a whole, the grape crop has not turned out over 50 per cent. of a full crop. The season turned out a short one. Frost came much earlier than usual, and in some parts of the district seriously injured the crop. Around Winona and Grimsby little or no damage was done to the grapes, except, perhaps, to a few Niagaras, by the frosts. It, however, affected the foliage seriously, and hurried the growers into picking the fruit earlier than usual, causing a rush of grapes to the markets, and lowering the price. Dealers paid a contract price of 13c a 6-quart basket. On the open markets grapes ruled somewhat higher, 15c to 20c for Concords and Niagaras, and 20c to 25c for Rogers and Delawares. The Welch Grape Juice Company, of St. Catharines, contracted a quantity of Concords at prices varying from thirty-five dollars to forty dollars a ton, packed in tray boxes.

Late pears, Anjous, Clairgeans and Duchess, were in good demand, at prices varying from 45c to 75c. Anjous and Clairgeans were a fair crop, but did not hang well on the trees. Duchess were light. Keiffers are a pretty good crop, but have an unusually large percentage of small fruit. Canners have only been paying about 45c a bushel. Dealers, however, have been paying from 1¼ to 1¾ cents a lb. On the open markets prices have been running from 30c to 45c an 11-quart basket.

Apple orchards in the Grimsby, Winona section, have been turning out better than was expected. Prices ran from $2.75 for No. 3's, to $4.50 and $5.00 for No. 1's a barrel. Peelers have brought from 40c to 80c a 100 lbs.

One unpleasant feature of the past month has been the unusual earliness and severity of the frosts. They have damaged fruit and vegetables, especially the latter.

On the nights of Sept. 30th and Oct. 1st, two very severe frosts struck the Niagara District, doing damage to tomatoes, potatoes, corn, cucumbers and grapes. In some places even peaches were nipped. This frost appears to have been most severe in the St Catharines district and in Niagara Township. It was somewhat less severe from Beamsville west to Hamilton. As usual, it came in streaks, doing much more damage on some farms than on others adjacent. One special feature in the St. Catharines district was that it attacked the gardens and vineyards on the very shore of the lake, a situation which has been generally immune from frost attacks till nearly the end of October. This was probably the worst frost so early in the season for over 30 years, and it did grave damage to the tomato crop. Another severe frost took place on the night of the 10th, and several lighter frosts also occurred up to the 16th. Since then the weather has been mild.

This is the most unfavorable season for vegetables that has been experienced in this part of Ontario since market gardening has developed into a business. This is reflected in the high prices received for them on the markets at Hamilton and Toronto. On the Hamilton market potatoes bring 35c to 45c an 11 quart basket, onions

PRODUCTIVE BEEKEEPING
is the title of a new book of 326 pages by Mr. Frank C. Pellett, State Apiarist of Iowa.
As the name of this book indicates it is especially adapted to the needs of the practical beekeeper. Not a discussion of scientific principles, but of practical methods.
Sources of Nectar, Wintering, Marketing, and Laws that Concern the Beekeeper, are titles of chapters of special interest.
Regular price $1.50 postage extra.
We offer this latest book with the American Bee Journal one year, both for $2.00, Canadian postage 15 cents extra.
134 illustrations, attractive cloth binding.
AMERICAN BEE JOURNAL, Hamilton, Illinois

75c to 80c; carrots and beets, 40c to 45c; tomatoes, 40c to 50c; sweet corn, a dozen cobs, 15c to 25c; cabbage, 80c to $1.10 a dozen, or 20c to 25c per head; lettuce, 60c to 75c; cauliflowers, each 15c to 25c. Such prices have not been reached for many years at this time, and city people are grumbling. With their usual ignorance, they are blaming it all upon the gardeners and farmers.

The city Solons of Hamilton have even gone so far as to recommend the abolition of the 6 day market there, during the busy months, and the restriction to 3 days a week, with the foolish idea that this will lower prices to the consumer. It is likely to have an exactly contrary effect, because it will greatly lessen the amount of produce going into that market. In accordance with the law of supply and demand, prices are likely to be higher, not lower. The day has gone by when councils, at the bid of city grocers, can dictate to the producers what their prices shall be. The result of this measure, if carried out, will be to lessen the volume of trade done in Hamilton, and send it to other places.

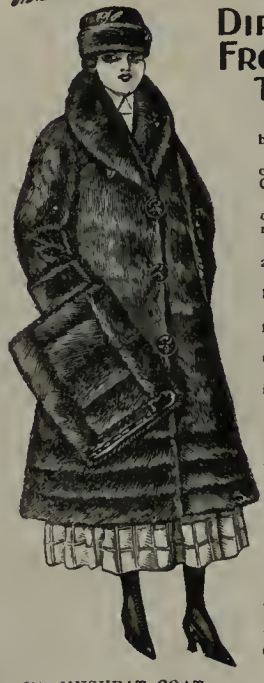
The Hamilton market has been of great benefit to the peach growers who have motor facilities for reaching it. More and more growers every season are taking advantage of the good prices generally secured for fruit there. The total crop of a number of extensive peach orchards has been distributed in the city of Hamilton, wholly through the open market.

The large centres in Ontario, Quebec, the Western and Maritime Provinces now get their supply of fruit from the Peninsula in car lots. This system is more in evidence than ever before. The produce arrives in better condition, on account of the refrigeration, and because it is not subject to transfer or pillage. It is landed at its destination at much less cost than small lots by express. The carriage by express will, however, continue as before to the smaller centres, towns and villages, where car lots would glut the markets.

The distributors are learning with every passing year how best to care for and give the growers the highest possible price for their goods. There is, however, still much to be learned and put in practice in the matter of better packing of such fruit as early peaches, pears, plums, and even cherries and grapes, in order that Niagara district fruit growers may more successfully control the fancy trade in Canadian cities, and oust the prestige gained by the Southern growers across the line, who are adepts in packing and refrigeration.

In Old Niagara this has been a disappointing season to the growers, in spite of the fact that some of the soldiers in camp were given leave of absence to assist in harvesting the peach crop. October 10th's heavy frost so "brittled" the stems that most of the peaches still left on the trees, fell off, making them a total loss to the grower. "We can't get enough help to pick the fruit on the trees, much less to care for that which falls down," said a grower recently. "The soldiers who received leave of absence were some good, but there were not enough of them to go around. We have lost hundreds of bushels of peaches merely for the want

HALLAM'S GUARANTEED
FUR COATS AND SETS



DIRECT FROM TRAPPER TO WEARER

You can save the many middlemen's profits by securing your fur garments from us.

We buy our Raw Furs direct from the Trappers for cash, and are the largest cash buyers of raw furs in Canada, buying direct from the trapper.

These furs are manufactured into stylish fur sets and fur coats at the lowest possible cost, consistent with the best workmanship.

Then we sell them direct to you at the very low catalog prices. We pay all delivery charges.

Every garment is sold under A POSITIVE GUARANTEE OF SATISFACTION TO YOU or your money back.

Our sales for fur sets and fur garments last year exceeded all our expectations and were the largest in the history of the house.

This year we confidently expect still larger sales, since the people realize more and more the bargains they obtain from Hallam.

We have in stock a large and varied assortment of all the articles shown in our FUR STYLE BOOK and can guarantee PROMPT SHIPMENT.

PRIZE CONTEST—$300 in Cash given away free in Hallam's Zoological Contest, 64 Prizes—Write to-day for the 1916-17 edition of

HALLAM'S FUR STYLE BOOK

which gives full particulars of the contest and contains 32 illustrated pages showing beautiful and stylish fur coats and sets, moderately priced.

211—MUSKRAT COAT—Made from select dark skins, well matched, deep shawl collar with cuffs. The graceful flare skirt and stylish lines of the coat combined with the handsome reverse border effect give this garment a very striking appearance made only 45 inches long in sizes of bust 32 to 44. Price delivered to you $62.50.

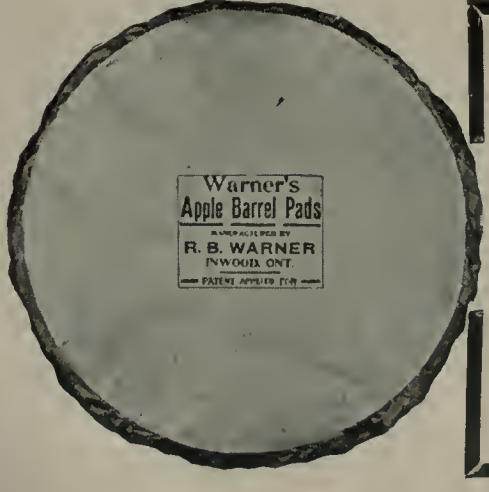
212—MUSKRAT MUFF to match $10.00.

RAW FURS—We are the largest Cash Buyers of Raw Furs direct from the Trapper in Canada.—Our Raw Fur Quotations sent Free.

GUNS—Traps—Animal Bait Fish Nets, Tackle and a complete line of Sportsmen's Supplies 32 page Sportsmen's Catalogue Free.

Address as follows John Hallam Limited
719 HALLAM BUILDING, TORONTO.

THE LARGEST IN OUR LINE IN CANADA



When Packing Apples

Remember that the value of every barrel of apples is increased materially in the eyes of your customer if it has an attractive face. He will pay more for fresh, snappy, unbruised apples.

Warner's Apple Barrel Pads

placed in each end of the barrel hold the apples firm and absolutely prevents them from being bruised when heading in and shipping. A few cents—that's all they cost—spent at your end may mean dollars back from the customer. Let us send you a sample and quote prices.

R. B. Warner, Inwood, Ont.

Fall Spraying Controls Leaf Curl "SCALECIDE" *Does the Work Cleans up the Trees*

Don't put off the dormant spray until the spring rush. The weather may be bad or the ground too soft. Spray this fall and make sure of controlling peach leaf curl, San Jose scale, pear psylla, apple canker, collar rot, etc. You can save trees now that would die before spring. Use "Scalecide." Better and cheaper than lime sulphur—cuts the labor cost. Never injures trees, hands, face or pump. Cost of spray materials will advance before spring. Order now and save money. Write today for free booklet, "The Whys and Wherefores of Fall Spraying." B. G. PRATT CO., Manufacturing Chemists, Department 43. 50 Church Street, New York City.

NEW AND RARE SEEDS

Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalogue free.

Perry's Hardy Plant Farm
ENFIELD, MIDDLESEX, ENG.

CIDER APPLES WANTED

We are prepared to pay the highest cash prices for cider apples in car lots. Farmers who have not sufficient to make up a whole car themselves can arrange with their neighbors for joint shipment. Write us if you have any to offer.

BELLEVILLE CIDER AND VINEGAR CO.,
Hamilton, - - - - Ontario.

Fruit Trees

Northern Grown Stock for Northern Planters

Our stock is first-class and our prices the lowest consistent with sterling quality,

ALBERT NURSERIES
ALBERT NEW BRUNSWICK

WANTED

Horse Radish Roots

Cucumbers, Onions Tomatoes.

GOOD PRICES PAID

The Wm. Davies Co., Ltd.
PICKLE DEPARTMENT
521 Front St. E. - TORONTO

of someone to pick them." The apple crop in this locality, too, is very poor this year in most varieties. This was due to the wet spring, which prevented the bees pollenizing the blossoms. While this is the apple year, there having been practically none last year, most of the good varieties are scarce. The same dismal story can be told of potatoes and tomatoes. Tomatoes are scarcer than for many years, and the canning factories are buying up most of the visible supply. Potatoes on the local market are $1.50 a bushel, as against 50 cents usually at this time of year. The outlook for the tomato pack in the canning factories of this district is decidedly blue. With the lateness of the season and the small size of early tomatoes, canners expected a heavier run late in the season. Repeated heavy frosts killed the majority of the tomatoes unpicked. The canning factories are now working on small lots, and orders from headquarters are to can every tomato possible.

Ontario Vegetable Growers' Association

The annual convention of the Ontari Vegetable Growers' Association will be hel in the Railway Commission rooms, Parli ment Buildings, Toronto, on Tuesday, N vember 21st. The following programme addresses will be given: "Home Grown Ve

The vegetables shown by the Ottawa Vegetable Growers' Association at the Ottawa Exhibition are well staged and given generally to the hospitals or other charitable organizations.

etable Seed," A. McMeans, Brantford; "Scor Cards in Garden Contest," J. J. Davis, Lor don; "Field Cultivation of Early Potatoes, Henry Broughton, Sarnia; "Onion Growing, John Campbell, Leamington; "Celery," C. Syer, Bartonville; "Irrigation," T. M. Mull gan, Ottawa, and O. J. Robb, Vineland St tion; "Standardization of Vegetables," C. Durst, Urbana, Ill.; "Greenhouse Tomat Growing," Nairn Bros., Hamilton.

S. C. Johnston, Vegetable Specialist, an Paul Work, Cornell University, are also e pected to give addresses. Reduced railwa rates on the certificate plan will preva from all parts of Ontario.

Good Prices Always

For Your Fruit and Vegetables

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto Market, we have established branch warehouses with competent men in charge at **Sudbury, North Bay, Cobalt, Cochrane and Porcupine.** In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

We are protected by the Produce Reporter Co's Credit Book, Chicago. All contracts governed by the trading rules and grades.

We Solicit Your Consignments

Send for Shipping Stamp

Branch Warehouses: Sudbury, North Bay, Cobalt, Cochrane and Porcupine.

H. PETERS
88 Front St. East, Toronto

International Apple Shippers Association

References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies.

Annapolis Valley Notes

Eunice Buchanan, Berwick, N. S.

There were slight frosts, but nothing to damage tender things like corn, dahlias and grape vines until October 11th, 12th and 13th. The last frost froze the apples to the core, but they thawed out about 10 a. m., when picking began again. The general opinion is that the fruit was not damaged. A thick, white frost covered everything, and ice formed on water. The next day there was a storm of rain and wind, fulfilling the old saying, "Three white frosts, and then a rain."

The Zebra caterpillars (Ceramicta picta) continue to destroy turnips. As it has not been seen here before, not much has been done to combat the pest. When driving, whole patches of turnips are to be seen with nothing but the mid-ribs showing. After finishing the leaves, the caterpillars have descended to eat holes in the roots.

Help is scarce. Women are working in the apple warehouses, and in the orchards. During the summer, some of the men belonging to the Highland Battalions, returned at intervals to help on their farms, but in the second week of October these soldiers' regiments were sent to England. The moving of the troops has caused delays in the shipping of fruit, especially on the railways.

Manitoba Fruits for Hybridization

Jas. A. Neilson, Lecturer in Horticulture, M. A. C., Winnipeg.

Dr. Dorsey, director of the Minnesota State Fruit Breeding Farm, and Mr. Weiss, his assistant, spent some time in Manitoba this summer, for the purpose of discovering valuable types of native fruits to be used as stock for breeding purposes. These gentlemen state that they were successful in locating some desirable specimens. The leading horticulturists in the adjoining western states have realized for some time the possibilities of improvement which some of the native fruits possess. They have done some successful work along this line, especially in plums and raspberries.

It would be desirable if the Department of Agriculture, or some wealthy interested citizen, would undertake to finance a careful and thorough native fruit survey of Manitoba. Our native fruits possess desirable characteristics, the most obvious and valuable of which is hardiness. In addition, there is a variation in the size, productiveness, and flavor in different species. If a careful survey was undertaken, it would be possible to discover the best types of the various native fruits. When these were located, it would be easy to propagate them at a central point adapted to the purpose. By a judicious system of selecting the most productive and best quality types, and hybridizing these with the hardiest and best foreign types, we should produce specimens combining hardiness, productivity and quality. The leading horticultural authorities recognize that it is necessary to work with native stock in order to have the greatest success in fruit growing in a country where severe winter cold prevails.

We have, in our midst, men who have made fortunes from the natural resources of the country. These could, if they chose to, confer a lasting benefit on posterity, and contribute something to the upbuilding of their country by donating a sum of money, sufficient to cover the cost of a movement such as has been outlined. Is there anyone with sufficient wealth and interest in horticultural work to respond to the call?

The Fruit and Produce Market

The Commission firms undernoted wish consignments of fruit and general produce. They will be pleased to have you write them for information, shipping stamps, etc., if you have fruit or vegetables for sale.

WANTED

Consignments of Cherries, Tomatoes, Peaches, Grapes and all kinds of fruit; also carlot apples. Centrally located, convenient to all car tracks. Commission 10%.

HY. LOP & SONS, 132 Princess St. Winnipeg, Man

References— Any mercantile egency, or Bank of Hamilton, Hamilton, Ont.

FRED BARKER

25 Church St., Toronto, Ont.

Representing J. & H. Goodwin, Ltd., Manchester; Thos. Russell, Glasgow; Nothard & Lowe, London; G. R. Cooper, Liverpool.

APPLE RECEIVERS.
Consignments Solicited.

DAWSON-ELLIOTT Co.

32 West Market St., Toronto, Ont.

Wholesale Fruit and Produce. Consignments Solicited.

STRONACH & SONS

33 Church St., Toronto, Ont.

Wholesale Fruit, Produce and Commission Merchants.

Brown Fruit Company
LIMITED
EDMONTON, ALTA.

Wholesale Fruits and Produce.
Car-load Shippers of Potatoes
SEND FOR QUOTATIONS.

HERBERT PETERS

88 Front St. E., Toronto, Ont.

Wholesale Fruit and Produce

See advertisement on page 280.

Apple Receivers

Representing

Simons, Shuttleworth & Co.
Liverpool and Manchester.

Simons, Jacobs & Co. Garcia, Jacobs & Co.
Glasgow, Scotland. London, England.

SIMONS FRUIT CO,

David L. Dick, Manager.

27 CHURCH ST. : TORONTO, ONT.

Information regarding export markets on request.

McBRIDE BROTHERS

J. R. McBride, Proprietor.

Fruit Exporters, Importers and Commission Merchants.

Consignments solicited. Terms cash.

35 CHURCH ST., - TORONTO, ONT.

SAMUEL HISEY

82 Front St. E., Toronto, Ont.

Wholesale Produce and Commission Merchant. Consignments Solicited.

ESTABLISHED 1884

William Morgan&Co.
Fruit Brokers
CARDIFF

APPLE RECEIVERS.

Consignments receive our prompt personal attention.

Cable Address—Morgan, Cardiff.

H. J. ASH

44-46 Church St. - Toronto, Ont.

CONSIGNMENTS OF FRUIT & VEGETABLES SOLICITED

We give personal, consisteot and reliable attention to every consignment. Shipping stamps furnished on request.

A Good Firm on Two Good Markets

TOM ADAMS AND BROS.
Fruit Merchants
BRISTOL

TOM ADAMS AND BROS.
Fruit Merchants
SWANSEA

Head Office:—BRISTOL

Get in touch with them to-day if you want top prices for your produce.

The Oldest Commission House in Toronto

McWILLIAMS & EVERIST

Send your Consignments.

KEEP THEM WORKING

A horse in the field is worth two in the barn. You can't prevent Spavin, Ringbone, Splint, or Curb from putting your horse in the barn but you can prevent these troubles from keeping horses in the barn very long. You can get

KENDALL'S
SPAVIN CURE

at any druggists at $1 a bottle, 6 for $5, and Kendall's will cure. Thousands of farmers and horsemen will say so. Our book "Treatise on the horse" free. 115

Dr. B. J. KENDALL CO., Enosburg Falls, Vt.

Stevens' Potash Fertilizer destroys wire worms, click-beetles, white grubs, cut worms, army worms, gypsy moths, brown-tailed moths. Address—
GEORGE STEVENS, . Peterborough, Ont.

The Brown-Tailed Moth

George E. Sanders, Dominion Entomological Laboratory, Annapolis Royal, N. S.

We have had during 1914-15 and 1915-16 two very successful seasons in controlling the Brown-Tail Moth in Nova Scotia. In 1914-15, the year following the big flight from the New England States, the inspectors found 23,156 nests in the province. The following year this was cut down to 18,154 nests, and last winter they found only 14,755 nests in the province.

One of the reasons that they have been so successful is that they know most of the infested orchards and go to them early in the season before the drop of the nests begins. Many infested orchards, however, could not be located until quite late in the season and thorough work was of course impossible in them on account of the drop that had already occurred.

The Brown-Tail is very easily located by apple pickers during October. The winter nests are now being formed and a circle of skeletons of leaves surrounds each nest to a distance of from six inches to two feet. These spots of brown skeletonized leaves are very conspicuous against the dark green of the trees and the nest containing a number of very small caterpillars in the centre of these browned leaves will identify th work with certainty as that of the Brown Tail.

Owners desirous of keeping their orchard free from the Brown-Tail would do well t instruct their pickers to keep a lookout fo these nests and to destroy them by burnin wherever found; they would also confer great favor if they would notify the write of nests found in their orchards so that a inspector may be sent to these orchards a the beginning of the season, so that mor effective work may be done.

Washington Apples for Western Canada

Circulars issued recently by the Unite Farmers of Alberta and the Alberta Farm ers Cooperative Elevator Co., Ltd., of Ca gary, indicate that the action of wester fruit growers in having the tariff on apple increased at the last session of parliamen continues to be strongly resented on th prairies. The prairie farmers some month ago decided, as a protest, that they woul buy apples from the United States this yea as far as possible, thus paying the extr money required in the way of duty into th Government treasury, rather than to Britis Columbia growers. That they are adherin to their decision is indicated to some exten by the fact that they have signed a contrac for Washington State apples for their mem bers. The following are a few extracts fro their circular.

"The British Columbia fruit growers through their association, have for a num ber of years been agitating for a highe tariff, which would keep the American appl out of Western Canada, and enable them t have the prairie provinces to themselves Careful investigations on our part showe that the British Columbia growers were, fo the most part, marketing their product in a most extravagant way, through a series o middle men, whose number was unreason able, to say nothing of their handlin charges. In accordance with our well know tariff principles, we naturally under thes circumstances, opposed the British Colum bia fruit growers on the tariff issue, and sug gested instead the application of co-opera tive effort, and offered the services of ou organizations in working out a system o marketing that would come nearer to straight producer to consumer basis. Ou offers were ignored. The agitation for th increased tariff was continued, and eventu ally secured last winter when the tax o ninety cents a barrel was established by th Dominion Government.

"In view of these facts, the Canadia Council of Agriculture, with which the thre prairie farmers' organizations in Manitob Saskatchewan and Alberta are affiliate passed a resolution in accordance with th sentiments expressed from time to time a our annual conventions, and recommende to our unions that their year's supply o apples should be secured from the Unite States as a protest against the action of th British Columbia fruit growers."

"The Alberta Farmers' Co-operative El vator Co., Ltd., have made a contract wit a Farmers' Co-operative Organization i Washington, for a supply of Washingto apples. It is now up to you, as members o this Association, to stand by the principl which you yourselves have so often e thusiastically endorsed at our convention and show that we not only mean what w say from a sentimental point of view, b that we have also the ability to bring th matter home to those who question th sincerity of our belief."

Big Ben

A *Westclox* Alarm

The Gift of Time

BIG BEN'S the only time-clock the modern farmer knows—he helps the farmer beat the sun to work.

Four a. m., in growing time, starts the farmer's day—brings a bumper crop of hours, for chores and in the field.

That's why Big Ben goes to the farm, at Christmas every year—to lend a hand in preparing for planting days. Now'days there's business like system on the farm. Where Big Ben's wound up every night, the farm cannot run down.

So it's Big Ben for Christmas, wherever you go—the gift of time that means good-will all year.

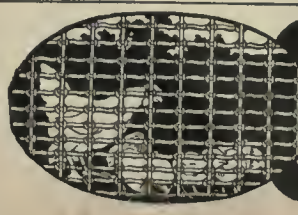
You'll like Big Ben face to face. He's seven inches tall, spunky, neighborly—downright good all through. He rings two ways—ten half-minute calls or steadily for five minutes.

Big Ben is six times factory tested. At your dealer's, $2.50 in the States, $3.50 in Canada. Sent prepaid on receipt of price if your dealer doesn't stock him.

Westclox folk build more than three million alarms a year—and build them well. All wheels are assembled by a special process—patented, of course. Result—accuracy, less friction, long life.

La Salle, Ill., U. S. A. Western Clock Co. Makers of *Westclox*

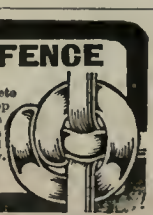
Other Westclox: Baby Ben, Pocket Ben, America, Bingo, Sleep-Meter, Lookout and Ironclad



PEERLESS POULTRY FENCE
A Real Fence—Not Netting

Strongly made and closely spaced—making it a complete barrier against large animals as well as small poultry. Top and bottom wires No. 9—intermediates No. 12 wire—made by the Open Hearth process which time and other tests have proven to be the best. Send for catalog. Ask about our farm and ornamental fencing. Agencies nearly everywhere. Agents wanted in unassigned territory.

The Banwell-Hoxie Wire Fence Company, Ltd.,
Winnipeg, Man., Hamilton, Ont.



Variety Preferences

Every few years the demand of fruit growers for different varieties of fruit undergoes a considerable change. Thus a changing of preferences constitutes a serious problem for the large nursery firms, who have to anticipate the changes by a year or two as far as conditions permit.

"The popular varieties of apples just now," said Mr. C. K. Baillie, Manager of the E. D. Smith nurseries, at Winona, to an editor of The Canadian Horticulturist recently, "are the red varieties, McIntosh, Snow and Spy. This last couple of years the nurseries have propagated McIntosh heavily, and their sales have justified this policy. Duchess and Wealthy are having the best sale for use as fillers in new orchards.

"The fashion in varieties of peaches changes about as quickly as the fashion in clothes. Yellow St. John and Elbertas remain as standbys, however. During the last two years growers have been shutting off in peach planting largely, because of the low prices they have received for their fruit.

"There has been a falling off in the planting of sour cherries. Perhaps the prices are responsible for this also. In the past, sour cherries have been extensively planted, because people had the idea that they did not need any care after they were planted. The advent of the shothole fungus has exploded this theory. The cherry fly has been particularly bad on the Montmorency variety. In the Winona district there has been no trouble with the fly, but at Stoney Creek in many orchards the cherries were not picked.

"The sales of stock for plums the last four or five years have been heavy on Grand Duke, Reine Claude and Monarch, especially in the Niagara district. These are good shippers, and are classed as fancy plums.

"Grapes are only being planted in the Niagara district and Middlesex County. In Middlesex County grape growing is rather an experiment as yet, although they have been planting fairly heavily for four or five years, and there are some good vineyards. The varieties grown in Middlesex are Campbell's Early, Moore's Early and Worden. The Niagara District, however, is the recognized grape growing section of Canada."

It is stated that there is a prospect of an American embargo on shipments of tomatoes, corn and peas to this country, owing to the great shortage in these lines in the chief producing centres of Maryland and New York. This shortage is so acute that it has already to some extent had the effect of a virtual embargo. American shippers in some cases refuse to quote, and in others quote at such a high price that large Canadian distributors say they cannot handle the goods.

A New Bulletin on Peaches

"Peach Growing in Ontario" is the name of Bulletin 241, Department of Agriculture, Toronto, Ont. This bulletin is written by F. M. Clement, B.S.A., and A. G. Harris, B.S.A. It is well illustrated and readable. Culture, societies, packing and shipping are fully dealt with, and eleven pages of information on the diseases and insects attacking peaches have been added by Prof. S. Caesar and J. E. Howitt. This is a good bulletin and should be read by every peach grower.

Prince Edward Island

The cooperative movement is making headway in this province. Last May there was organized the Associated Farmers' Cooperative Company, Ltd. Progress was slow at first, but now steady, even rapid, progress is being made.

The principle has been adopted of handling all goods on a guaranteed 10 per cent. basis, as this gives the members the benefit of their collective buying at the time of purchase. All invoices are at the disposal of the members. This was found to be more satisfactory than the older way of paying dividends, where the purchasers had to wait a year before seeing any results of their cooperation.

As usual the dealers are opposed to the movement and are using their influence to discourage prospective members. By persistent effort on the part of the organizers, however, the people are slowly, but surely, seeing the waste in the present system of inent farmers in the province, who, though busy with their numerous affairs, find time to assist with the good work.

Fruit growers will have to pay more for their baskets again next year. The price of six-quart packages has been advanced $5 a thousand, and that of 11-quarts, $3 a thousand. These prices obtain only until December 15. After that, increases will be added according to the price of materials, such as tacks, nails and leno.

James Johnson, Manager of the Norfolk Fruit Growers' Association, recently packed, in specially padded boxes, with iron bindings, 6 carloads of Greening apples, to fill an order for overseas. These were consigned to the Ontario Government Agent, Union Cold-storage, London, England.

To Investors

THOSE WHO, FROM TIME TO TIME, HAVE FUNDS REQUIRING INVESTMENT, MAY PURCHASE AT PAR

DOMINION OF CANADA DEBENTURE STOCK

IN SUMS OF $500 OR ANY MULTIPLE THEREOF.

Principal repayable 1st October, 1919.

Interest payable half-yearly, 1st April and 1st October by cheque (free of exchange at any chartered Bank in Canada) at the rate of five per cent per annum from the date of purchase.

Holders of this stock will have the privilege of surrendering at par and accrued interest, as the equivalent of cash, in payment of any allotment made under any future war loan issue in Canada other than an issue of Treasury Bills or other like short date security.

Proceeds of this stock are for war purposes only.

A commission of one-quarter of one per cent will be allowed to recognized bond and stock brokers on allotments made in respect of applications for this stock which bear their stamp.

For application forms apply to the Deputy Minister of Finance, Ottawa.

DEPARTMENT OF FINANCE, OTTAWA,
OCTOBER 7th, 1916.

SKINNER SYSTEM OF IRRIGATION
Control complete. Prevents drought losses. Reduces labor bills. Increases profit. Special Portable Line for $11.75. Send for new Bulletin.
The Skinner Irrigation Co.
217 Water Street Troy, Ohio.

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Items of Interest

There may be those among our readers who imagine editors as having a tremendous appetite for horticultural information. Horticultural products, however, are devoured with even greater avidity than mere facts. This appetite is perhaps partly responsible for the rapidity with which a goodly sample of pears sent in by Mr. W. M. Turnbull, Galt, Ont., disappeared recently in the office of The Canadian Horticulturist. The main reason, however, was that the attractiveness of the pears themselves both in color and flavor was noticed by other members of the staff as well as by the editors, and—well you know how it is. The pears in question were grown and developed by Mr. Turnbull, and have been named by him, "Sunrise." While they were not so large as they probably would be in a more moderate season, their high color and flavor should commend them to consumers. Although the pears are gone, the memory lingers. We strongly favor the origination of new varieties of fruit of this quality.

In South-Western Ontario frost has damaged some of the tobacco and bean crops. A recent report from Lambton County says peaches and pears have been plentiful, but plums below an average yield. Apples are small and scabby. Many orchards were not properly sprayed, owing to wet weather and lack of help in the spring.

Recently 28 iced cars of fruit were shipped from Vineland Station in one week.

The potato crop in New Brunswick this year is 10 to 15 per cent. short of last year. The estimate is 7,300,000 bushels from 40,000 acres. The quality of the crop is excellent and no sign of rot visible. At $2.40 a barrel the returns will be $6,000,000.

Shipping Suggestions

Geo. E. McIntosh, Transportation Sec'y., Ont. Fruit Growers' Ass'n., Forest, Ont.

As the apple shipping season is now on the following brief notes may be of value to shippers. It is important for the welfare of the shipper that specific data relative to each shipment be kept. Let this be the first consideration. It guards against loss to the shipper, and such records are a great assistance in adjusting claims.

Prospects are for a shortage of refrigerator cars. Car orders should be given in writing, the shipper keeping a duplicate copy. On the back of the copy notate the date car is supplied, car number and initials, date shipped and arrival. Forty-eight hours is considered time in which Railway Companies should supply cars. If possible give them another 24 hours.

It is the duty of the carriers to load car shipments of apples. This, however, is seldom done, the shipper preferring to do his own loading. When the car is on a public team track insist on having a clear bill of lading without notation "Shipper's Count." Before commencing to load the car notify the agent that a clear bill will be required. It is then his duty to give it. For floors placed in refrigerator cars not so equipped, or box cars when refrigerators cannot be supplied, the shipper is entitled to a rebate of $3.00 per car, and 500 lbs. will also be allowed to cover the weight of such floors.

Indefinite notations such as "Protect from heat or cold," may be refused by agents, but a carrier receiving a refrigerator car loaded with fruit must use ordinary care to keep the car ventilated, though the bill of lading showing the car is loaded with fruit is silent on the subject of ventilation. Where fruit is carried by a railroad in a refrigerator car there is an implication that the carrier will exercise care. It is the duty of a carrier to apprehend that at certain seasons of the year shipments of perishable produce are liable to freeze.

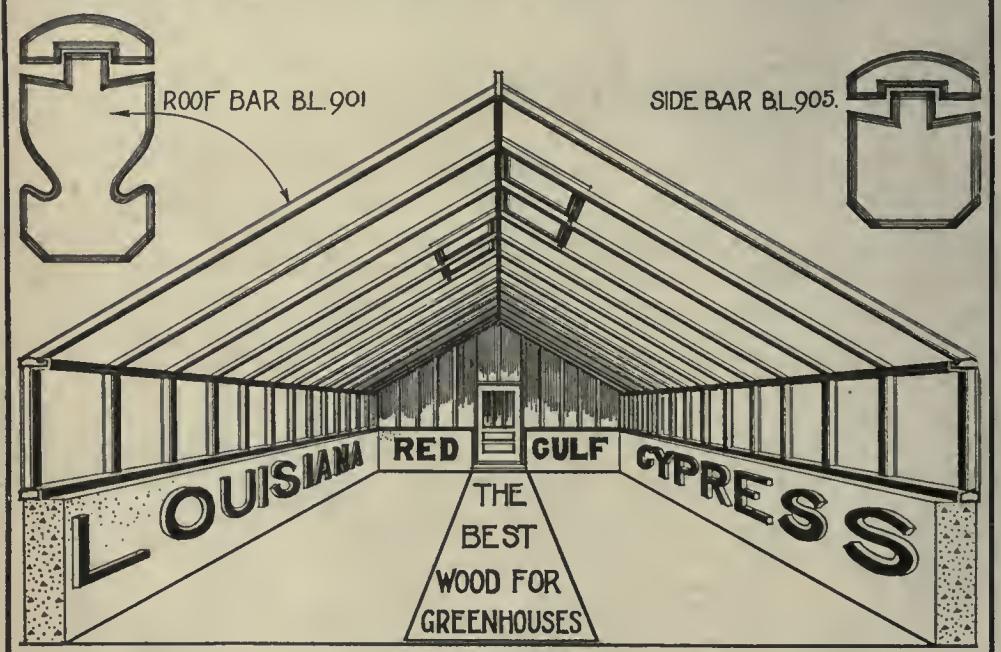
There is no provision for sending attendants with refrigerator cars. When a box car is used and a stove placed therein by the shipper, an attendant is carried free one way from Nov. 1st to March 31st, and return transportation will be granted at one-half first-class fare.

The application of the railways to the Railway Commission for permission to make an additional charge of one cent per car per mile, minimum $2.00, for heated car service in addition to regular freight rate, has not yet been granted. Therefore, there is no additional charge for heaters supplied for carload traffic moving from points east of Port Arthur.

Agents, when requested, will undertake to change in transit the destination of carload traffic from one place to another, charging $3.00 for each such change, plus the difference which may exist between the rate billed and the rate from shipping point to ultimate destination. If out of the direct run an additional charge of one cent per ton per mile (minimum 20 miles) will be made for such extra haul.

The business of a railroad is transportation, not storage; and a consignee has no legal right to use a car as a warehouse; it is to the interest of both carriers and shippers that cars be promptly released. The detention charges are $2.00 a day for the first two days, and $3.00 a day thereafter. Forty-eight hours free time is allowed for unloading.

Where a shipment of perishable produce is made in a month when freezing weather is not unusual, and the shippers direct the carrier to leave open a vent in the car, the cannot recover for loss caused by severe but not unprecedented, cold weather.

GREENHOUSES


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Fruit, Vegetable and Flower Reminders for November

Cions of apples for grafting next spring may be cut now.

Pick and burn all dead fruit or mummies from plum trees.

Cover the strawberries with clean straw about four inches deep.

Tramp the snow around the young apple trees. It will help to keep the mice away.

Corn fodder or boards tied on the south side of apple or basswood trees will protect from sunscald. Do it now.

See that all weeds, grass and leaves are removed from around the apple trees. This sort of trash makes a good home for mice and they like the green bark of apple trees.

Hardwood cuttings of grapes, willow and dogwood may be taken now and buried in sand until spring. They may then be set three inches apart in nursery rows with three feet of space between rows.

All roots and cabbage should be in winter storage now.

A cabbage or mangel hung in the poultry house furnishes a much-liked green food.

Cover carrots, beets, and other root crops lightly with dry sand to prevent wilting.

A few roots of horse radish should be put in dirt in a cool cellar for use during the winter.

Parsnips may be left in the ground over winter. If wanted for winter use dig late in the fall and store in a box of soil in a cool place.

Have a few rhubarb plants been dug to grow in the cellar this winter? They will furnish good sauce if put in a dark cellar and allowed to grow.

Mulching of the shrubbery may be done at any time now.

Leave the hyacinths in a cool dark place until well rooted.

Snapdragons make good potted plants for a while, if lifted in the fall.

Go over the house plants and ferns and remove all scale insects. Soap suds is good to use.

Paper white narcissi and daffodils potted early may be brought to heat and light and will soon flower.

Don't store dahlias or cannas in piles. They should be in boxes or on shelves only one layer deep.

Do not feed chrysanthemums after the buds begin to show color. Keep a sharp lookout for insects.

Pansies covered with straw or leaves will often live through the winter in good order, ready to bloom in the spring.

As soon as the ground is frozen, it is well to put four or five inches of manure over the tulip bed.

Hyacinths are among the best potted bulbs. Put one in a four-inch pot, or two or three in a six-inch pot.

Flowering shrubs are more useful about the home yard than annuals or perennials, as they do not require so much care.

Now is a good time to give the garden its final cleaning. A clean garden now means fewer insects next spring.

Some of the berried shrubs, such as barberry and wahoo, make good bouquet material now, if they have plenty of berries.

Perennials may be lightly covered with straw after the ground freezes. Do not use any heavy material, as it is likely to smother the plants.

Ferns should be looked after closely now. They should not become too dry or too wet. The air of most living rooms is too dry for the best development of the fern.

One can have lots of fun growing bulbs in the house. They should be started early, although a planting as late as this will often give good results.

Roses, canterbury bells, foxgloves, etc., may be covered with straw and a board frame to shed water. Water should not be allowed to settle about them or in their foliage.

Do not coddle your plants. Give them plenty of light and fresh air. Keep them clean and give them what water they need—neither too much nor too little.

Put a little good rich garden soil in the cellar or where it will not freeze. It will come handy to start those early vegetable and flower seeds in next spring.

Roses should be laid on the ground and covered with straw or hay. Cover the hay with boards.

The University of Illinois desires to obtain a copy of the December, 1913, issue of The Canadian Horticulturist. Have any of our readers got a copy to spare?

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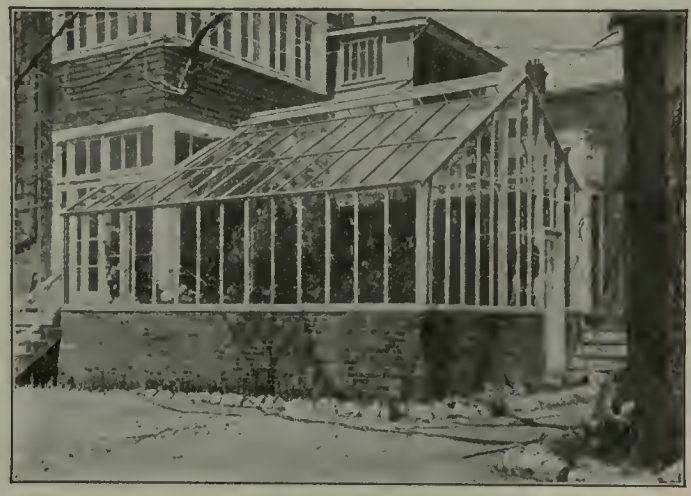

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Wood Ashes Valuable as Fertilizer

Wood ashes, which when unleached contain about five per cent. potash and 30 per cent. lime, are one means the farmer has for preparing against the shortage of potash salts which formerly came from Germany. The amount of potash varies somewhat, being higher in hard woods.

The potash is readily soluble in water and will be largely leached out if the ashes are not protected from rains. Farmers burning wood should store the ashes during the winter and thus furnish themselves with at least a small supply of this fertilizer that the war has made so high in price.

The Ohio Experiment Station advises the use of 400 to 500 pounds per acre of a mixture of two parts of wood ashes and one part of either acid phosphate or bonemeal. Such a fertilizer may be used to advantage on the spring crops, while the lime contained in the ashes will have a beneficial effect on acid soils. Experiments at the Station show that potash does not produce its full effect except when reinforced with phosphorus.

The Economy Crate

The economy apple crate is not being used to any extent in Ontario this year. A number of the Toronto commission men were questioned recently by an editor of The Canadian Horticulturist, and this seems to be their general experience. A great deal of the Ontario fruit this year is No. 3, and the growers prefer to pack their low grade fruit in barrels. One letter from Mr. D. S Dick, of the Simons Fruit Co., states:

"While the economy crate is cheaper, and fruit can be packed in same at a lower comparative cost than in barrels, I think No. 3's are better packed in barrels. Of course an open crate does not come under inspection as it is an open package, but the very fact that the fruit is not tight lowers their keeping quality. A poor No. 3, however, is better never to go into any package."

Despite the discouraging reports the inspectors agree in the opinion that there will be about 600,000 barrels of Nova Scotia apples this year. They will be much cleaner than last year's crop.—Outlook.

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XMAS PRESENTS

Christmas will soon be here, and with it that eternal and bothersome question of Christmas remembrances—bothersome in a sense of the difficulty in knowing what to get. Yet, you cannot give your friends anything better than something in which they are interested.

If their garden is their pride and joy during the summer months, could you give them anything nicer than a good book on gardening? You see the point!—and a book is always acceptable. Our Book Department has a splendid assortment of horticultural booka, write us about them. Here are a few good ones at popular prices:

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"Trees, Shrubs, Vines and Perennials," by John Kirkegaard, Dr. H. T. Fernald and Prof. E. A. White, deal with when and how to plant, pruning, spraying and cultivation. Also general cultural information. Net $1.50.

"The Orchard and Fruit Garden," by E. P. Powell, deals with the choice, planting and cultivation of fruit, fruit trees and bushes. Net. $1.00.

"Productive Orcharding," by F. C. Sears—a practical, complete, up-to-date and authoritative work covering every phase of fruit growing. Indispensable to the fruit grower. Net $1.50.

"Principles of Fruit Growing," by L. H. Bailey—a complete treatise on the practise of fruit growing, covering tillage, planting, fertilizing and protection. Net $1.50.

VEGETABLES.

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"The Vegetable Garden," by Ida D. Bennett—deals fully with the various vegetables that form the staple of the small garden, contains excellent chapter on fertilizers, insecticides and garden tools. Net $1.00.

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The Canadian Horticulturist

Floral Edition

Vol. XXXIX TORONTO, DECEMBER, 1916 No. 12

The Apple Scab Problem

L. Caesar, Provincial Entomologist, O.A.C., Guelph, Ont.

ONE of the big problems in the minds of most Ontario fruitgrowers this fall is "How can we control apple scab next year in our orchards?" Quite a few men, utterly discouraged by the poor results they have obtained from their spraying the last two years will jump to the conclusion that spraying is useless, and so will cease to spray for a few years until the results obtained from some more thoughtful neighbor or neighbors will again convince them that spraying is an absolute necessity if the orchard is to be a commercial success.

Successful control of apple scab under all kinds of weather conditions requires that each grower be constantly studying all he can about the disease, so that he may be able from the knowledge gained to so time and apply his spraying that he will be able to keep his fruit clean. I wish, therefore, to repeat in this article some things that have already appeared in the columns of The Canadian Horticulturist, and also to give some further information gained as a result of the last two years' experience with this disease.

Brief History of the Disease.

Apple scab winters in little black spots on both the upper and lower surfaces of the leaves on the ground. In the spring, sometimes about the time the leaf buds have burst, sometimes not until the blossoms are opening, these spores after or during a rain begin to be shot up a little distance from the leaf and are then carried by the wind here and there through the air. Some of them light on the young leaves and, if the blossoms are open or nearly ready to open, on any part of these. Here they do no harm unless there comes a period of dark, rainy or foggy weather lasting for about two days, so that there will be moisture sufficient to enable the spores not only to germinate but also to work their way through the skin of the leaf or of the fruit blossom. If they have started to germinate and bright weather comes they perish unless they have first been able to penetrate the skin. Spores from the leaves on the ground are not all scattered by the wind in one day, but continue to be scattered for some weeks if there are rains to provide the necessary conditions of moisture.

Once the little germ tube has penetrated the skin it continues to grow just beneath the surface. There is no sign on the surface of fruit or leaf that it is there until at least a week and often not until two weeks have elapsed. Fruitgrowers should therefore remember if they are watching the little apples for the appearance of scab spots, that the first spots they see will have come from an infection that on an average had taken place fully ten days before these spots were visible.

Fig. 1.—Apple showing the black spots caused by apple scab.

The scab spots that develop on fruit and leaves get their dark color from the mass of little new spores that cover their surface and that now form a new source of danger as they are daily carried from place to place by the wind. Once more these will do no harm unless they too can get a couple of days of constant moisture to enable them to germinate and have their germ tubes work through the skin. Once beneath the skin no spraying can prevent their forming a scab spot later. Hence spraying must prevent, not destroy, scab spots.

From the foregoing brief account we may draw the following inferences:

First: No matter how abundant spores are in an orchard they cannot germinate without plenty of moisture, usually two wet days at a time, or two wet nights and a wet day between.

Second: The greatest period of danger of scab infection will be from the time the blossoms are ready to burst until about two or three weeks after the bloom has fallen. This is the time when the foliage and young fruit must be kept covered to ward off the disease. The reasons that there is more danger in this early period are that the months of May and June are nearly always wetter than the rest of the growing season for apples. The days are then shorter and the nights longer and the ground more moist with heavier dews, so that there is less chance, especially in dark weather, for the moisture to dry off than later in the season. The hairy nature of the young fruit enables it to hold more moisture than the bare, smooth skin of the apple later on could hold.

Third: The apple itself is formed from the receptacle of the flower, that is, from the little green part just below the calyx. As this becomes exposed as soon as the cluster of blossom buds begin to separate it must be protected right from this time. If it becomes infected there will later be a scab on the fruit.

Fourth: The object of spraying is to put on the leaves and young fruit a substance such as lime-sulphur which will remain there a considerable time,

Fig. 2.—Opening leaf buds, about the best time to give the first or so-called dormant spray to secure results upon apple scab.

and be able to prevent the spores that are present from germinating and infecting either the foliage or fruit.

Times to Spray.

This year there was in some orchards some infection of leaves before the blossoms burst. This is not often the case. It suggests that contrary to our opinion last year and the opinion of most students of apple scab in the past, it would be wise to give an earlier application for this disease than the one just before the blossoms opened. I have proof, however, that the omission of this application did not account for the high percentage of scab this year, though giving it would probably have lessened the scab some. The best time to apply this earliest spray would be, not before, but just after the leaf buds have burst. If there is no San Jose Scale to combat, or if there is not a great deal of Oyster-shell Scale, the lime-sulphur need not be stronger than one gallon commercial to twenty gallons of water (1.015 sp. gr.). If, however, San Jose Scale is present, use it not weaker than one gallon commercial lime-sulphur to seven gallons water (1.035 sp. gr.). If tent-caterpillars or cankerworms are present two pounds arsenate of lead may be added to every forty gallons.

The second application should be just before the blossoms open. Do the earliest varieties if necessary first, but try to get all done as nearly as possible to the time when the pink is showing, but before the bloom has opened. Use lime-sulphur one gallon commercial to thirty gallons water (1.010 sp. gr.), and add two lbs. arsenate of lead to each forty gallons. The third application should be immediately after the blossoms have nearly all fallen. Promptness in this spray is of immense importance, both for scab and codling moth. Putting it off three or four days will often mean failure. Use lime-sulphur one gallon commercial to thirty-five gallons water (1.008 sp. gr.), and add two pounds arsenate of lead to each forty gallons.

Sometimes, as happened in several districts this year and also a few years ago in Norfolk county, the period elapsing between the spray just before the bloom and the one just after the bloom falls is a long one and so wet that the mixture becomes washed off and cannot protect the part of the flower that later forms the fruit. In such cases it will be absolutely necessary to give an intermediate spray, say, ten or twelve days after the one just before bloom. In this application the poison should be omitted and the lime-sulphur used at the strength of one gallon commercial to thirty or thirty-three gallons water (about 1.009 sp. gr.).

Sometimes all of June is wet. In that case there should be an application about two weeks after the codling moth spray. Use lime-sulphur one gallon to forty gallons water (1.007 sp. gr.). Poison may be omitted.

If an autumn spray is given to ward off late attacks of scab and sooty fungus it should be not later than August 15th, otherwise the fruit would be stained at picking time. Use lime-sulphur alone, 1 gallon to 40 gallons water. (sp.gr. 1.007).

Causes of Failures.

The failure of growers to control scab this year may be traced to the following causes:

1. Wet weather made the ground so soft in spring that many had to omit either the spray before bloom or the one after bloom. The omission of either meant scabby fruit. Spraying in dry weather was useless.

2. Many men did not try to spray **promptly** at the times indicated in the spray calendar. If they had known the life-history of the scab disease they would have known that this would mean failure in a wet spring.

3. More than half, probably three-fourths of the apple growers do not spray nearly heavily enough. It takes time and more material to wet a tree thoroughly, but it more than repays for all expense. It is the only kind of spraying that will give nearly perfect results. Good nozzles, set at the right angle, good hose and a good working machine are necessary for good spraying. A large, well pruned tree of thirty-five years of age that had much bloom on it, cannot be well sprayed with less than ten gallons of liquid.

4. In some districts, such as Prince Edward county, an intermediate spray, without any poison, between the opening and falling of the blossoms, was necessary on most varieties to give clean fruit because the interval then was too long and the rains too frequent and heavy.

Fig. 4.—The right stage for the codling moth spray. Note that the bases of the blossom buds in 3 and of the flowers in 4 develop later into the fruit and should be kept well covered with spray.

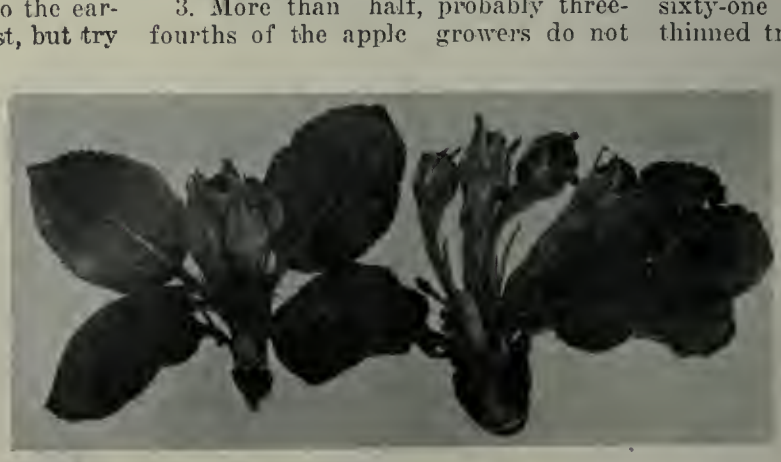

Fig. 3.—The right stage of the blossom buds for the second application.

Thinning Apples

The Utah Agricultural College, during 1911 and 1912, thinned the fruit on a number of apple trees to determine the exact value of this important orchard practice. It was found that the yield was not reduced, and, what was more important, it graded higher when thinned so that the apples were at least four inches apart. In 1911, there was sixty-one per cent. fancy fruit on thinned trees, and fifteen per cent. on unthinned. In 1912, there was thirty-eight per cent. of fancy and extra fancy fruit on thinned, as compared with twenty-two per cent. on unthinned trees. The culls varied from six per cent. on thinned to 30 per cent. on unthinned trees in 1911; in 1912, from thirteen per cent. to twenty-one per cent.

When reduced to dollars and cents, it was found that the net returns were thirty dollars per acre.

The Fruit Tree Leaf Roller in New York State*

Glen W. Herrick, Professor of Economic Entomology, Cornell University, Ithaca, N.Y.

BECAUSE of the proximity of the principal fruit districts of this State to those of Ontario, Canada, whatever is of interest in the way of insect pests here is also of interest to Ontario entomologists and fruit growers. It was with this thought in mind that the writer chose to discuss briefly the fruit-tree leaf-roller in New York.

The leaf-roller is not an insect new to this country. Since 1896, at least, it has been put among the enemies of the apple in New York. It was not, however, until 1911 that the leaf-roller began to attract particular attention in this State. It furnishes a fine example of an insect previously unimportant which has suddenly and inexplicably multiplied to an enormous degree and reached the rank of a serious pest at a single bound. During the seasons of 1912, 1913, 1914, and 1915, it caused serious and widespread injury in Western New York. During the past season it was less in evidence, but no prediction can be made regarding it, for it may break out again at any favorable time.

Habits and Injuries.

The larvae appear as the buds are bursting, and begin to attack the unfolding leaves. They bend over and tie them together with silk. Within this nest the larvae live and eat the leaves. As soon as the blooms appear the larvae begin to eat off the blossom stems and tie them together with silken threads, along with the leaves surrounding the blossom cluster. This webbing and tying together of the blossom clusters is a most pernicious habit, because it interferes seriously with spraying for the codling moth. In one Baldwin orchard in which the larvae were very abundant, the blossom clusters were so webbed together and covered over with silk, dried petals, and leaves that it was almost impossible to get the spray mixture into the calyx cup.

As soon as the young apples begin to set they are tied together with silk, while the larvae live inside and gnaw cavities into the sides of the young fruit. To give some idea of the number of larvae present, the writer counted 17 worms in nine blossom clusters; Braucher counted 21 larvae on one twig 21 inches long, and 19 larvae on another twig 22 inches long.

The larvae also work on the leaves, rolling them and living within the roll.

Moth of the leaf-roller, much enlarged.

Here, effectually hidden, they feed on the tender tissues of the leaves. When disturbed, they drop down out of their hiding places and remain suspended by silken threads like cankerworms. When all is quiet, they climb back to their hiding places and begin their work again. Their injuries to the leaves are often very serious, especially when the larvae are abundant. Gillette says, "I have seen small orchards entirely defoliated by this species so that not a green leaf could be seen."

Life History.

The eggs are deposited in greatest numbers during the last of June and the first part of July. They are laid in small, oval, convex patches about as large as the end of a lead pencil on the bark of the smaller twigs. Here they remain until the following May or for a period of about ten months.

The hatching period extends over an interval of two to three weeks, although the majority of the larvae appear about the time the buds are bursting.

The full-grown larva is about one inch in length, light green in color, with a black head, and black thoracic shield. It takes from three to four weeks for the larva to become full-grown. It pupates in a flimsy web in a rolled leaf and in about twelve days the adult moths appear. These begin to deposit their eggs, thus completing the life cycle.

Natural Enemies.

The fruit-tree leaf-roller seems to have a number of natural enemies. We bred at least four species of hymenopterous parasites from the larvae and pupae in our cages. Gill has recorded several species of birds feeding on the larvae and has also found a few insects which are predaceous on the leaf-roller. Notwithstanding this rather large list of enemies the leaf-roller has not been held in check, but in spite of them has increased enormously at certain periods.

Methods of Control.

The leaf-roller has been one of the most difficult of lepidopterous apple pests to control. Its habit of rolling leaves, tying them together, and living within these protective coverings makes it difficult to get at. Attempts were made to control the insect by thoroughly spraying the infested trees with arsenate of lead and lime-sulphur about the time the buds were bursting, and again just before the blossoms opened, but the results were not satisfactory. In this connection the work of one of the better and more intelligent fruit-growers in New York is of interest.

The large orchards of this fruit grower were sprayed five times and sprayed thoroughly and intelligently. The orchards were sprayed first, in the dormant condition, just before the buds burst, with lime-sulphur, 1 gallon to 6½ gallons of water with 1 pint of black-leaf-40 to every 100 gallons for the aphis. The second spraying was made just before the blossoms opened with lime-sulphur 1 to 50 and 3 pounds of arsenate of lead. The third application was made just as the petals had fallen and consisted of lime-sulphur 1 to 50, arsenate of lead 3 pounds and black-leaf-40, ¾ pint to 100 gallons. A fourth spraying was made about 10 days to two weeks after the third with lime-sulphur 1 to 50 and 3 pounds of arsenate of lead. At about this time the owners became much worried over the roller and sprayed a fifth time with arsenate of lead alone, 4 pounds to 50 gallons. In spite of this extraordinary amount of careful and thorough spraying the trees and cover crop under the

* Extract from a paper read before the Ontario Entomological Society.

The leaf-roller, natural size.

Leaf rolled by the larvae.

Hatched egg masses of the apple leaf-roller.

trees were alive with larvae and 40 per cent of the crop was ruined.

In 1914 the writer and Mr. R. W. Leiby carried out an extensive series of experiments in the field at Hilton, New York. The writer had determined by laboratory experiments made in 1912 that the miscible oils were very effective in destroying the eggs. In 1913 some limited orchard experiments demonstrated the effectiveness of these oils under field conditions, and in 1914 we determined to try them on a much larger scale. In these experiments we used Scalecide, Orchard Brand, and Target Brand miscible oils. Suffice it to say, without going into details, that the miscible oils gave very gratifying results. We were able to destroy from 74 to 92 per cent. of the eggs and we believe that these oils furnish a means of control for the leaf-roller if they are intelligently and thoroughly applied. Such has also been the experience and conclusion of Gill in Colorado, Childs in Oregon, and Weldon in Colorado and California.

Conclusions and Recommendations.

The leaf-roller is difficult to control because of its habit of hiding in the opening buds or in rolled leaves. Thorough spraying with arsenate of lead in heavy proportions has not proved effective in cases of severe infestation, either in New York or in the Western States.

Extended experiments show that the eggs of the leaf-roller are susceptible to the effect of miscible oils, which, when thoroughly applied, have destroyed from 74 to 92 per cent. of the eggs. In Colorado, New Mexico, and Oregon, where these oils have also been used extensively, even a higher proportion of the eggs have been destroyed. In experiments made during the last three years no injury has resulted from the use of miscible oils. The oils have been applied in the spring (April) at as near the active growing period of the tree as possible, but always before the buds burst. They have been used generally at the rate of 1 gallon to 15 gallons of water. Only one application should be made, and that on a day when the temperature is above freezing.

In cases of severe infestation the oils should be supplemented by thorough sprayings with arsenate of lead at the rate of 6 pounds to 100 gallons of water, or of lime-sulphur solution. At least one application should be made before the blossoms open, and another after the petals fall; the latter will serve also as the regular spraying for codling moth. In lightly infested orchards spraying with miscible oils may be omitted and reliance placed on thorough applications of arsenate of lead, at the rate of 6 pounds to 100 gallons of water or lime-sulphur solution. One or two applications should be made before the blossoms open and another after the petals fall.

Lessons From Failures

D. Johnson, Dominion Fruit Commissioner, Ottawa

Now that the apple crop of 1916 has been harvested it would, I believe, be good business for the fruit growers to review the season and draw from it lessons that may be of value for next year's returns. Early in the spring it was freely predicted by the majority of growers that the apple crop would be so large and the demand so poor that apples would be of practically no value. It was pointed out that the transportation facilities to Great Britain were seriously impaired, and that we could expect but a poor demand at home. The consequence was that most of the growers neglected their orchards and devoted their energies to other lines of agriculture. The result is that the 1916 apple crop is one of the smallest, and is of the poorest quality that Canada has ever produced. At the same time, prices are exceedingly high and the demand strong, not only in Canada, but also in Great Britain. The prices realized for apples in England have been the highest ever obtained in a commercial way so far as Canadian shipments are concerned. Those who have devoted the necessary time and energy to their orchards have received returns surpassing anything in their experience.

Last summer I had an opportunity to visit practically all the leading fruit growing districts of Canada. I regret to say that in most of these districts I found the orchards neglected; many of them so badly neglected that it will possibly take many years to restore them to their former production. Two essentials in the production of fruit have been neglected this year to an extent never, I think, equalled in any year in the past—these are spraying and cultivation.

True, it was difficult to spray in the early spring owing to the constant wet weather. Yet those who went about it in a determined manner, realizing that their crop largely depended upon the application of spray were, in all but a few districts, able to demonstrate what could be accomplished, even under adverse conditions. In districts in which there were practically no apples of value, I have found orchards that stood like an oasis in the desert, showing that they had received the required attention, and had responded by develop-

Apples injured by the leaf-roller.

ing a crop of apples quite equal to that produced in our best seasons.

These orchards also received cultivation in order to protect them against the drought which existed during the greater part of the summer. While it is difficult to lay down definite rules with regard to the cultivation of orchards, yet on general principles I have no hesitation in saying that cultivation in the early summer is one of the necessities in the development of any kind of a fruit crop. This not only makes the food in the soil available, but protects against the long dry spells which so often prevail during the summer months. There is no better mulch than an earth mulch, and if the roots are kept some little distance from the top of the ground they will not suffer to the same extent in dry weather as roots which are brought to the top to feed upon a cover mulch.

In travelling among the orchards of Canada this year I was impressed with the wonderful results that have been obtained in many orchards by Bordeaux mixture. I have asked myself time and again, and I pass the question on to the fruit growers of Canada: Have we done a wise thing in dropping almost entirely Bordeaux mixture? Lime sulphur has proven a most valuable spray, and has been of very great service to the fruit growers, but I merely raise the question: Has it been as successful in the control of fungus in the ordinary commercial orchard as Bordeaux mixture? Is the quality of fruit produced in Eastern Canada of as high quality as it was six or seven years ago? And are the crops as large? Questions such as these should be studied and pondered by the fruit grower during the winter months, so that he may be able to prepare his plans to meet the requirements of the coming season.

King apples ready for the graders and packers. This practice of piling in the orchard is conducive to disease. Fortunately it is becoming obsolete.

Profitable Vegetable Cropping

Charles Barton, Cedar Springs, Ont.

TO make the garden pay its best, double cropping should be practised. By double cropping is meant, growing two crops on the same land in one season, either successively or together. Crops for successive double cropping must mature rapidly, so that both can be harvested the same season. They should not be of the same botanical family, since rotation is important. Moreover, the tillage of the first crop must constitute a suitable preparation for the second.

In growing two crops simultaneously, companion cropping, as it is called, the crops selected must be such as mature at widely varying times. One of them should be a catch crop grown to usefully occupy the ground until the main crop requires it. Moreover, they should, if practicable, be of different botanical families, and such as will benefit by the same tillage and manuring.

Rotation of Crops.

Rotation signifies the regular removal of specific annual crops to different plots of ground year by year, involving successive cultivation of plants which tax the land in different ways. A cursory consideration of the composition of soils, and of the demands made upon them by plant growth will demonstrate the importance of such a system of cropping.

Practically every sample of soil contains in available condition some proportion of each of the mineral constituents necessary to sustain vegetable life. Besides this, an immense quantity is locked up in the stones and other mineral components of the soil. This store is continuously, though very slowly, being dissolved by the action of frost, rain and air, so as to become available for assimilation by plants.

Certain crops require specially large proportions of particular minerals, while others need comparatively small supplies of the same elements. Again, some plants tax only the surface soil, while others send down long tap roots into the subsoil in search of food. For example, the ash of peas contains 40 per cent. of potash and 36 per cent. of phosphates, while that of cabbage contains, potash, 48 per cent., phosphates, 16 per cent., lime, 15 per cent., sulphuric acid, 8 per cent., and soda, 4 per cent. If we continuously crop ground with peas, which make a great demand on phosphates, sooner or later the yield will fail. The available supply of these minerals will be used up faster than it can be restored by natural forces.

Of course, in such a case the required element could be supplied in the form of manure, or by allowing the plot to lie fallow for a sufficiently long period. The latter method is an obviously unprofitable one, since it entails temporary cessation from cultivation. Equally obviously the former may be improved upon by successive growing of other plants, which will tax different sets of minerals. Thus, instead of growing peas again, we deeply work the soil to assist in releasing the locked up minerals by exposure to the air; give a liberal dressing of manure, and grow cabbages, which require large proportions of lime, sulphuric acid, and soda, and much less phosphates.

Again, after cabbage, the fibrous roots of which obtain their sustenance from the surface only, we cultivate some other plants, such as parsnips, which send down long tap roots into the soil in search of the necessary minerals. Thus good crops are secured, even though both cabbages and parsnips require large quantities of potash.

Decorative Perennials for the Autumn Garden*

Miss M. E. Blackock, Meadowvale, Ont.

THERE are few among us who do not heave sighs of regret when we wake up some morning and find that "the frost is on the pumpkins," and alas! our nasturtiums, salvias and too many other annuals that have been making such a riot of color in our gardens are mere limp, blackened masses of decaying vegetable matter.

Sadly we clear away the debris. We try to philosophise, telling ourselves it does not matter, winter is so nearly here—but is it? Oh! no, there is from six weeks to two months of our magnificent "made in Canada" fall weather yet to come. And are our borders to be a blank waste all this time? It is now too late to mend matters for this season, but the lesson can be learned now—"Provide plenty of good fall-flowering, hardy perennials for the border, even if you have to leave out some annuals to make room. Then the early frost will have no terrors for us.

The hardy asters alone would more than fill the breach, with early, mid-season and late varieties—and they are so lovely! The misty blues and mauves, the rich pinks and purples, melt into the autumn tints of the trees and shrubs resulting in an exquisite harmony of color. But before beginning on the hardy asters I would like to recommend a few good tall subjects that make an admirable background for them. Some of the Rudbeckias are excellent. R. Nitida Hergstoune is one of the stateliest, reaching a height of seven or eight feet, with soft yellow flowers and long green cones. R. Subtomantose is four to five feet in height, and of a bush-like growth, with rich yellow flowers and small cones of a deep chocolate brown. It has all the glowing color of R. Newmanni, our wild "Black-eyed Susan," with a refinement of growth all its own.

For happy growers commend me to the Heleniums. They are "the flower for the million." Whether it be the richly colored H. Rubrum, the fine old H. Riverton Gem with its wall-flower-red blossoms, the soft yellow H. Riverton Beauty with brown centres broidered delicately with gold, or H. Autumnale Superbum, towering often to seven or more feet, with solid yellow flowers, they are all good, easily grown and wonderfully fine as backgrounds for asters in the fall garden.

Boltonia Asteroides (False Starwort) is another good doer. Its great quantities of starry white flowers massed on top of seven to eight foot stems, are delightfully light and graceful. Another fine white flower is the Giant Moonpenny Daisy, rivalling the Boltonia in height, and equally beautiful.

The autumn Monkshoods must not be forgotten. The glossy, finely divided leaves of Fisher's Moonkshood would make it well worth growing for foliage alone. But in September and October, when its massive spikes of lovely soft blue flowers begin to open, we worship it for these alone. Delphiniums, too, if cut down to the root after their mid-summer display, can usually be relied upon for autumn bloom, but the spikes are miniatures compared with their earlier efforts. Spring sown seedlings, however, often are effective at this season.

For lovely autumnal effects nothing excels or equals the hardy asters. Perry's Blue and Perry's Mauve, with Aeris and the small white Aptarmicoides, a charming wee thing for the front of the border, usher in the season toward the close of August. With September the Aster season comes on indeed. Each little rod shakes out of sleep its quota of flowers, and from tip to base becomes a wand of magic beauty. When one variety leaves off another begins, and not until "drear November" do we harden our hearts and cut down the plants before the seeds get ripe enough to fall and cause trouble.

To my mind, the outstanding varieties are the following: In the Nova Augtae section, Sil Fardel, a fine rich pink. In the Nova Belgii section, Perry's Blue and Mauve, early, Feltham Blue, Cloudy Blue, an exquisite pale lavender-blue, Keston Blue (a rich color), Perry's Pink Improved, Heideron, a soft pink, Amos Perry an early pink, Esther a dwarf pink, and St. Egwin a fine late pink. Not classed in any section are Coome Fishacre, a flesh-colored late variety with great lasting qualities, Hon. Edith Gibbs with tall sprays of pinkish-lavender, and finest of all, the queen of Asters, Climax, with its large lavender-blue flowers centered with gold. A clump of it forms a mass of bloom as large as a fair sized lilac bush, and quite as effective.

Mikado Asters. The Asters are the official autumn flowers. Photo by C. Mortimer Bezzo, Kitchener, Ont.

In the Cordifolius section both Profusion, a pale mauve three to four feet high, and Ideal a soft lavender dwarf, are exquisite. Of the small heath-like asters, Ericoides Enchantress is like our own wild one, and equally beautiful. Katie, white changing to rose, is pretty, as is small starry white known as A. Tradescantii. In the Vimineus section Maidenhood and Delight are good varieties.

With all this material to choose from there is no need of being hopeless when frost comes. The plants described pay no attention to it, and are quite as fresh after waking up with its spangles bedecking them as before.

The Lebanon Squill (Puschkinia Libanotica), with white flowers shaded and striped with blue, is quite a different shade to the numerous other blue flowers, and in growth it is more like a small hyacinth, though its petals do not recurve. It begins to bloom just as the Siberian Squill declines.

*Extracts from a paper read before the Ontario Horticultural Convention.

Flowers that Brighten the Home

W. Hunt, O.A.C., Guelph

THE most useful and satisfactory class of plants for brightening the home in winter are winter flowering bulbs. To secure a succession of bloom, a number of these should have been potted during October and November, as suggested in an article in The Horticulturist in the October issue. It is not too late, however, now to pot up a number of these if it has not already been done. As a rule, good bulbs from surplus stock can be obtained as late as the middle of December from the seed stores, especially if the bulbs have been kept in a cool place.

By putting three bulbs in a five inch flower pot in ordinary potting soil of white roman hyacinths, paper white narcissus, or two or three bulbs of the Von Sion, Bicolor Empress, Emperor, Golden Spur, Poeticus Elvira, or almost any of the numerous kinds of narcissus or daffodil bulbs, good results may be obtained until the outdoor bulbs commence to flower in springtime.

Pot the bulbs in loamy soil, either from the garden or from underneath sod. Lighten it up with one-sixth part of sand and add about two pounds of pulverized sheep manure, or as a substitute about one pound of fine bone meal to each half bushel of the soil mentioned. If some leaf soil (black soil from the bush) can be obtained, a little of this may be added. The pulverized sheep manure and bone meal can usually be purchased at seed stores. Dry cow manure gathered from the pasture or field also makes one of the best fertilizers to mix with soil for pot plants.

The Dutch Hyacinth L' Innocence. A fine white hyacinth for the window.

Potting Bulbs.

Pot bulbs so that the top of the bulb is just under the surface of the soil.

Primula Obconiaca. The leaves and flowers of this plant contains an irritant poison. The leaves should be handled as little as possible. This is one of the best window plants

The surface of the soil should be half an inch below the top of the pot for water space. Pack the soil fairly firmly around the bulbs. Water them well once to moisten all the soil, then set the pots away in a cool, dark place for four or five weeks or longer to develop a root system. When good roots have started their ends can usually be seen protruding through the aperture in the bottom of the pot. Or the pot may be inverted and the plant carefully removed and examined without disturbing the root system or removing any of the soil. The soil should not be disturbed around the roots of bulbs after they have once started. Bring the pots into the light when good roots have formed. Keep the soil moist, not too wet, from the time the bulbs are potted until they are out of flower. By bringing a few pots at a time into the window, a succession of bloom can be had at little expense and trouble. The main point in bulb growing indoors is to secure a good root system before top growth starts. Dutch Hyacinths are among the best bulbs for late growing. One bulb in the centre of a five inch pot will be found satisfactory, treated as recommended for the other bulbs mentioned. Good drainage is necessary for bulbs.

Freesias.

Freesias are useful winter flowering plants grown from bulbs. About six or seven bulbs of these may be put in a five inch flower pot, potted in the same way and the same kind of soil as the other bulbs mentioned. The pots of freesias, however, must be set in the window at once as soon as potted, and not put in the dark. Water them well once, then do not give them too much water until they have started to grow well. Support them with stakes and twine or green raffia.

Bermuda Buttercup (Oxalis luteum).

A good bulbous rooted plant best grown in a hanging pot or basket is Bermuda Buttercup. Bulbs can be had at seed stores. Plant bulbs in the soil mentioned, about an inch apart, and do not give them too much water until well started into growth. After this stage they require plenty of water at the roots. The tops should be sprayed with water occasionally, or the leaves dipped in water every week or ten days to keep down red spider. These bulbs will make a great showing in the window. The pink flowered Oxalis roses and white flowering Oxalis alba are also good bulbous rooted pot plants for the window. The leaves of these plants are sold as shamrock leaves and are always in great demand for St. Patrick's Day.

Callas (Richardia Ethiopica).

Callas should help to brighten up the

Narcissus Poetecus Elvira. This is equally good for growing indoors or for setting out for spring flowering.

Collection of Freesias in pots. The flowers are very sweetly perfumed.

window now. The leaves should be sprayed or sponged every week or ten days with water and the soil they are growing in kept moist. If they do not grow or flower satisfactorily give them some liquid fertilizer every week or so. One of the best fertilizers for pot plants indoors in winter is Bonora. It is odorless and very effective as a fertilizer. It can be purchased at seed stores. Sterlingworth plant tablets and other fertilizers to be had at seed stores may be used for pot plants in winter. By dissolving half an ounce of nitrate of soda in a gallon of water, a good fertilizer can be had for pot plants. Give about a teacupful of the solution to each large plant about every two weeks.

Winter Flowering Cactus.

The cactus known as Inch or Lobster Cactus (Epiphyllum truncatum), is a good flowering plant, as is also the Christmas flowering cactus (phyllocactus ackermani). These plants like a warm place in winter. A dry atmosphere does not injure them as it does many plants. Cactus plants must not be kept too wet at the roots in winter.

All pot plants that have a well grown root system are benefitted by being given a liquid fertilizer when the roots become crowded in the pots and the soil exhausted.

A moist atmosphere is one of the most important factors in growing plants successfully indoors in winter. Too many people put the plants near steam or hot water or hot air radiators. It is a mistake to do so. The superheated, dry atmosphere near radiators is not good for plants, inducing as it often does attacks of insect pests and premature decay and discoloration of foliage. This is more especially true of palms, ferns, rubber plants and similar foliage plants. Put saucers or pans of water on the radiators or underneath the plants, if possible, or keep a little water in the saucers in which the pots are standing. A steaming kettle or pot of water on a stove in small houses is also a great help to growing plants. Sponging the leaves of all glossy leaved plants such as palms, rubber plants, etc., every week or so with clear water is beneficial. A moist atmosphere and a temperature of 50° at night and 60° to 65° in the day time is warm enough for all window and house plants.

With the addition of a few primulas, Chinese Primula and Primula malacoides, and a geranium or two, to the plants mentioned, a bright and attractive window can be had all winter. The preparation for a bright window should be made in the late summer and early fall months, to have the best success possible. Plants must be grown, they cannot be manufactured on short notice.

Fighting the Pests of House Plants*

Miss Barbara Stratton, Stonewall, Man.

"To her window-garden my lady went,
Forlorn and lonely and sorely spent;
Out from her garden my lady came,
Calm and gentle, with heart aflame.
Lessons of trust her flowers taught,
Patience to toil with hope and cheer,
Life has by love been dearly bought,
Heaven is watching, why yield to fear?"

THE commonest of all pests of house plants is the aphis, green fly, or plant louse; then comes the minute black spider, which troubles the rose and the calla; the small red spider, the scale louse, small white worms in the earth, the mealy bug and the white fly.

The white worm is found in soil which, through being kept too wet, has become stagnant—sometimes where too much leaf mould has been used, or where dead leaves and other trash has accumulated on the top of the soil. A teaspoonful of soot (from hard wood) in earth enough for a five inch pot will make these insects feel unwelcome, while at the same time it will increase the depth of color in pink and crimson flowers. Soot tea is valuable as a fertilizer, and those who use it say that no worms ever bother their plants. One point needs to be noted here, namely, that soot varies much in strength, and an overdose injures plants.

Another remedy for these pest is lime water. Take a lump of unslaked lime about the size of your closed fist. Drop this lump of unslaked lime into an ordinary-sized bucket of

Nothing brightens the home like a window of plants. Primulas, Callas, Begonias and winter flowering bulbs are here shown.—Photo by W. Hunt.

* A paper read at the Manitoba Horticultural Convention, Feb. 17, 1916.

water. Let it stand twenty-four hours, and use the clear liquid, avoiding the sediment. Before applying lime water, let the earth in the pots become dry, then flood it with the lime water, and a week later repeat the process.

The red spider is an enemy of gloxinia, and many other soft-fleshed plants, when kept in a dry atmosphere. This insect dislikes nothing so much as moisture, and will never appear where plants are kept in moist air.

It is always better to prevent his coming, but he will depart if water is kept constantly evaporating among the plants, or if the under side of the leaves (where this insect makes his home) be sprayed frequently with water. The red spider and water are mortal enemies—he hates water as badly as a small boy or a tramp.

Fine tobacco-dust is fatal to many plant-lice, and to the naked larvae of all. Ground tobacco in the earth is used for maggots in outdoor gardens, and is said to be worth more than its cost as a fertilizer. Possibly it might be used in this way indoors.

An extract made by boiling the chopped stems and leaves—one pound of tobacco (the real thing) to one gallon of water—is recommended for all soft-bodied insects. This extract does not injure the foliage except by way of disfiguring delicate foliage with spots.

For the white fly, my remedy for some years, has been to carefully remove plant and earth from the jar and deposit them in a furnace—"seven

Narcissus Bicolor Victoria.

times heated" if it can be found; but I recently learned that a kerosene emulsion will clear them off successfully. This is made by dissolving two ounces hard soap in one gill of boiling soft water, and one pint of kerosene.

The scale louse is a very persistent enemy of cactus, palms, oleanders, Boston ferns, and ivy. The first time I found one of my plants—it was a species of coleu—infested with scale lice, I thought that it might be washed off by rain. So when I saw a rainstorm coming I set the plant out of doors. The rainstorm proved to be a smart shower of hail, and effectually removed the scale-lice—also the leaves and branches of the plant. I am not sure, yet, that this is not the best remedy. These insects can be removed by soapsuds, applied with a shaving-brush. Scraping them off individually with a razor is advised. Fir-tree oil is also recommended.

A writer in an old copy of The Mayflower says: "If you intend to fight scale, go at it in the spirit of the martyr going to the stake—ready to endure anything. Kill, not only every scale, but his skulking father, mother, grand parents, children, brothers and sisters, cousins, nephews and nieces, friends and neighbors as well. One general massacre is worth a dozen half battles. Wet the affected parts in soft, soapy water to soften the sticky scales, then go over every inch of leaf and stem, and rub them off."

For the mealy bug, hand-picking, and afterwards washing the plant with any good insecticide, is safest.

There is a small species of root-louse, which gathers on the roots of some potted plants. The best and quickest way to get rid of it is to lift the plant out of the soil, shake off all earth, wash the roots well, scald the pot, and replace in entirely fresh earth. Soaking the earth with kerosene emulsion or tobacco tea helps. But whatever of these remedies one is using, the most valuable ingredient is patient persistence.

Vines and Their Uses*

W. T. Macoun, Dominion Horticulturist, Ottawa

TO most persons born in the Old Land the word vine means but one kind of plant, the grape, but in America all kinds of climbing plants are included in the word vine. While it may not be quite correct to call all climbers vines, the latter word is more pleasing to the ear and, doubtless, that is why it has been so generally adopted in this country.

There is something in the vine-clad building or wall, the festooned pergola, and the verandah, porch, or summer house shaded and draped with good climbers that strongly appeals to one. Not only are they objects of beauty and grace, but they make a dwelling home-like, giving the idea of comfort as well.

There is nothing that so quickly and so cheaply improves the appearance of an unattractive or uninteresting or poorly planned dwelling as a good climber. The hard outlines are softened. The building becomes more home-like, and some shade for the verandah is quickly afforded.

Perhaps the most popular vine in Canada and in Ontario is the Virginian Creeper. It is native of this country, is very hardy, and is easily obtained, which are three of the main reasons for its popularity. In addition, there is the glossy graceful foliage in summer, and the brilliant hues of autumn that make it attractive. The ordinary form climbs both by twining and by means of the tendrils which work into crevices in walls of buildings. Although it is suitable for verandahs, it is not satisfactory for covering walls, as it is necessary to secure it to the wall in some way. The natural means is not sufficient, for although the tendrils are more or less provided with discs, these do not attach themselves securely enough.

The variety known as Englemanni, a form growing in the Central States, has become popular in recent years. The tendrils of this variety are furnished with discs, which enable it to cling much better than the ordinary Eastern form. It is fairly satisfactory for walls, but in our experience it does not cling nearly as well as a certain variety growing wild in the vicinity of Ottawa, and, doubtless, in other places in Ontario.

When the Central Experimental Farm was established in 1887, a vine of this form was found near the site of the Director's house, and from this vine, and others found since, many vines have been propagated both from cuttings and seeds. All the seedlings cling as well as the parent plant, thus showing that it is a true variety. When this form was discovered, the old descriptions of the Virginian Creeper made by botanists were looked up, and it was found that it answered the de-

*Extract from a paper read before the Ontario Horticultural Convention.

scription of a variety called by Don, Ampelopsis quinquefolia hirsuta, hence this name was adopted, and we gave it the common name of "Self-fastening Virginian Creeper." It has smaller leaves than the common species, and while those of the latter are quite smooth and glossy, the Self-fastening variety are downy and have not the glossy appearance of the other, though quite attractive, and in the autumn they colour very highly. The tendrils of hirsuta are comparatively short and furnished with discs, by means of which this variety clings tenaciously to walls or fences. It requires little or no attention, save when it reaches the eaves, when it should be kept cut off, lest becoming top heavy it should be pulled off in a storm. Another advantage the Self-fastening variety has over the other is in its freedom from thrip or leaf hopper. It may be that the sensation of the down on the leaves is not pleasant to this insect. The leaf hopper on the ordinary farm can be controlled by thorough spraying with tobacco extracts such as Black Leaf 40, if spraying is begun in good season.

Boston Ivy.

The Japanese or Boston Ivy which, perhaps, deserves second place as a useful vine for the Province of Ontario, is another plant which has many scientific names. It was called Boston Ivy because it was first brought from Japan to the Arnold Arboretum near Boston. Its glossy leaves, neat attractive appearance and great powers of clinging tightly to a wall or fence, make it more desirable, for this purpose, than even the Self-fastening Virginian Creeper. It is not sufficiently hardy in the colder parts of Ontario. At Ottawa, for instance, there are few good vines, most of them killing back badly. If the Japanese Ivy were an evergreen it would be still more valuable, but most of the evergreen climbers are found among the tenderer plants.

One of the hardiest evergreen climbers is the English Ivy, Hedera Helix. This is scarcely hardy enough even for the warmest parts of Ontario, but many persons have seen the fine specimen on the Village Inn at Grimsby, and others may be found at Niagara and Queenston. It is rather surprising, considering how well these few vines are succeeding, that more plants of the English Ivy are not found on the Niagara Peninsula.

Perhaps the different species of Clematis should come next in general usefulness. While the large flowered varieties of the Jackmanni type are very fine, their success is too uncertain. Hence we give to Clematis paniculata the first place. This attractive vine does not bloom until late in August or September, after other kinds have done blooming. During September it is a mass of small, white, sweet-scented flowers. While in Eastern Ontario it kills back considerably in the winter, it grows very rapidly again and blooms profusely.

The Virgin's Bower, **Clematis virginiana**, the wild species which is quite common, is a rampant grower, with small greenish white flowers in summer. It is useful for covering fences. It makes a good vine for the verandah, though it is said to attract flies. The European species, which is somewhat similar to this, and which the nursery firms often supply, is the Traveller's Joy, **Clematis Vitalba.**

Anyone who has been successful in getting vines of the varieties of the large flowered Clematis of the Jackmanni type established, or has seen them growing, knows the great beauty of these flowers. If they were easier grown there would, doubtless, be many more of them, but, unfortunately, there is a disease which attacks them near the crown of the plant. This is destructive, and no good preventive or remedy seems yet to be found.

This vine covered wall of Boston Ivy adds a charm to the home of the late Vice-Pres. of Dundas Horticultural Society.

The Honeysuckles are charming climbers, the three most satisfactory being the Scarlet Trumpet Honeysuckle, **Lonicera Sempervirens,** the English Honeysuckle, **Lonicera Periclymenum,** and Hall's Japanese Honeysuckle, **Lonicera Japonica Halliana.** These are mentioned in order of hardiness, though none of them are entirely hardy at Ottawa. The Scarlet Trumpet Honeysuckle blooms almost continuously from early in June until late in the autumn, the scarlet trumpet-shaped flowers being very attractive. It is, as its scientific names implies, an evergreen, though in the colder parts of the Province, the foliage is injured in winter.

The English Honeysuckle or Woodbine, **Lonicera Periclymenum,** which is bright pink outside and yellow within, is deliciously sweet scented. The odor is quite spicy, reminding one of incense. It is not so hardy as the Scarlet Trumpet Honeysuckle, and at Ottawa does not usually bloom well unless it is laid down for the winter. In recent years the Hall's Japanese Honeysuckle has become very popular. It is too tender for the colder parts of Ontario, but in South-Western Ontario the profusion of the small white and yellow flowers and graceful foliage make this an attractive climber. The native honeysuckles **Lonicera hirsuta,** and **Lonicera glaucescens** are well worth growing.

One of the most satisfactory vines is the Climbing Bitter-Sweet or Waxwork, **Celastrus scandens.** The foliage is of an attractive shade of green, and is rarely troubled with insects or disease. When established it is a rapid grower, sending out long stiff shoots which, when they reach something to twine around, will do so. It is particularly suitable for training over verandahs, summer houses and fences. In planting this vine one should be sure of having one which produces both male and female flowers. Some vines have only male flowers, and in such cases no fruit is produced, and the vine is not nearly so attractive as it otherwise would be. The fruit is conspicuous and hangs on most of the winter. The berries are orange in colour until they are cracked open by frost, when they show scarlet. The Japanese species, **Celastrus orbiculatus,** or **Celastrus articulatus,** is, if anything, more attractive than the native species. While the berries are smaller they are more abundant and the contrast in colour between the outside and inside of the fruit, namely yellow and orange, is even more charming than the Canadian species.

One of the most striking vines is the Dutchman's Pipe, **Aristolochia Sipho.** While not as hardy as some climbers, it does very well at Ottawa, once it gets established, which usually takes two or three years. It looks particularly well about the verandah or pillars of a large house. The leaves are large, heart-shaped, and deep green. It climbs by twining. The flowers, which are nearly hidden by the leaves, are brown and of a peculiar shape, much resembling a Dutchman's pipe, hence the name.

Grape vines are sometimes used with good effect over pergolas, verandahs or summer houses, but unless kept well sprayed, are liable to become infested by insects, and the leaves be disfigured before the summer is over.

Many other vines might be mentioned, but those already given are the choice.

The Cellar Vegetable Garden

By Henry Gibson

CELLAR gardening is not new to many of the older school of amateurs. Many of them in some way or other have found the cellar of inestimable service, not only for the storage of plants, but for growing certain salads and vegetables. Who of us has not had visions of rhubarb for sauce and pies in mid-winter as well as in spring. All you need is a barrel of nice large roots put into your cellar any time during the present month. Near the end of the month, put these roots outside, with no protection whatever, for you want them to freeze. It is only necessary to put them near the door to accomplish this.

Two or three days later spread some coal ashes on the cellar floor ten or twelve feet from the hot water heater. The roots are then set close together on this layer of ashes and watered thoroughly. Ashes are also worked in between and over the roots until the bed is nearly a foot thick. A thorough soaking of water completes the job of planting. Water once a week is all that is needed thereafter. It is essential that the cellar be kept almost dark, and that the water used for watering be tepid or as warm as new milk. From a plantation made about the end of the month you will be able to get fine stalks of luscious rhubarb by the first week in February.

The roots for forcing may be dug from an ordinary plantation in your own garden if you happen to have sufficient so that you may dig some without interfering materially with the supply from the garden in the spring time. Generally speaking, outdoor plantings over four years old are past their best. Then is the time to use the clumps for forcing. Good roots may also be grown in one year from seed if sown early under glass and transplanted into rich soil early in the spring. Still another plan for getting early roots for forcing is to sow the seed in a cold frame in August, mulch the roots in the fall, and plant out into the open ground the following spring. It is important to use an abundance of well rotted cow manure. Commercial fertilizers, especially nitrate of soda, will be beneficial.

The roots should be dug in the fall before freezing weather sets in. They may be kept in any cool place or thrown in piles out of doors, and covered with soil to prevent drying out, but not to keep out frost. Freezing before attempting forcing is absolutely essential to success.

It may be asked by someone why we recommend ashes in preference to soil? Simply because one happens to have more ashes than soil in the cellar. It is doubtful if soil is any better. The material that makes the stalks is stored up in the roots, many of which weigh several pounds, and it is only a matter of transforming this material into leaf-stalks and leaf-blades. Any medium that will retain moisture about the roots will suffice for this. The temperature of the forcing place is not a matter of great importance. If very warm, say, sixty degrees or more, the stalks will be more slender owing to the more rapid growth, but the cutting season will not last so long. Low temperatures are favorable to large stalks and heavy yields.

The quality of the forced product is superior to that of outdoor crop. It is more tender, not so acid. The skin is so tender that it is not necessary to peel it. The veriest novice should experience no difficulty in forcing rhubarb in the cellar during the winter. The beds of pink stalks caused by the diffused light are as pretty as flowers themselves. It is a pleasure to look at them as one is tending the furnace. And when this delicious vegetable appears on the table a happy smile goes around as the possibilities of cellar gardening in mid-winter are more fully appreciated.

Winter does not rob Geo. F. Baldwin, Toronto, of fresh vegetables. In his inexpensive greenhouse he has a perpetual garden.

Chickory (French Endive or Christmas Salad).

Rhubarb is not the only possibility of the cellar in winter. Chickory is another vegetable that is as easily grown, and as a salad it is relished by all who use it. Many persons confuse this chickory with the two varieties more common, the curled, and the broad-leaved Batavian. French endive belongs to another family, the proper name being Witloof Chickory. Much of this product sold on this side of the Atlantic comes from Europe. The roots are raised from seeds sown not earlier than the last week in May or the first of June. The cultural requirements are the same as for lettuce or other salads, save that the habit of growth is different. The leaves resemble those of the dandelion, and the roots those of the parsnip. It is a biennial. During the second year the flower stalk will develop like that of the common field chickory, with a blue flower. For forcing the roots are lifted just before frost. The leaves are cut off, taking care not to cut away the crown or growth will not commence when forcing is attempted.

The roots are stored in sand in the same manner as carrots are stored, and brought out for forcing as required. They are forced in much the same manner as rhubarb, save that it is better to use soil or even sand. We believe that soil makes more compact heads than sand, hence soil is preferable for this reason. The crowns of the roots should be covered at least six inches deep in order to blanch the leaves as they develop. It is also essential that the temperature does not exceed fifty-five degrees at any time. Warm water should be applied to the soil. A month to six weeks is required for forcing the roots. The leaves are then cut off with a small piece of the roots adhering. Heads may be had sooner by increasing the temperature, but the heads are not of such good quality as when grown cooler. When only a few heads are needed for family use, the roots may be planted in boxes, large plant pots or tubs of from twelve to fourteen inches in diameter. From eight to ten roots can be got into such a receptacle. Pack firmly between with soil. Another pot or tub is then inverted over the top, after watering, and placing in the cellar or under the bench of a cool greenhouse if you happen to have one. The drainage hole of the inverted pot or tub should be covered with paper or other material to exclude the light, even with the small amount of light that would be admitted the leaves would come green. That is to be avoided at all times.

By planting a batch of roots as soon as they are lifted from the garden one may have this salad for Christmas. It may also be had in the fall before frost is too severe by covering the plants in the open ground with leaves, or using paper and boards as in blanching celery.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

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1. The Canadian Horticulturist is published in three editions on the 25th day of the month preceding date of issue. The first edition is known as the fruit edition, and is devoted chiefly to the commercial fruit interests. The second edition is known as the floral edition, and is devoted chiefly to the interests of amateur flower, fruit and vegetable growers. The third edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first and second issues are replaced by an equal number of pages of matter relating to the beekeeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, $1.00 a year; three years for $2.00, and of The Canadian Horticulturist and Beekeeper, $1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising rates, $1.40 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December 1915. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 13,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1915	11,158	August, 1915	10,294
February, 1915	10,942	September, 1915	10,067
March, 1915	10,864	October, 1915	10,017
April, 1915	10,917	November, 1915	9,704
May, 1915	10,927	December, 1915	9,253
June, 1915	10,329		
July, 1915	10,448	Total	124,920

Average each issue in 1907 6,627
Average each issue in 1915 10,410

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honorable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed

THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

Northern Grown Potatoes

There is no reason why Ontario should not grow and export large quantities of potatoes. Large areas in southern Ontario are admirably suited to their production. Why, then, do not the growers in those districts produce those bumper crops? Simply because they lack good seed. Good seed potatoes cannot be grown in southern Ontario. The climate makes for yield rather than quality in the stock, when considered from the seed point of view. Good potatoes must be grown in a more northerly climate, where the season is shorter.

The men in Ontario who are reaping the largest and most profitable crops of potatoes are those who are using northern grown seed. This fact came out at the recent Vegetable Growers' Convention, when it was given as a conservative estimate that from northern grown seed at least twenty-five per cent greater yield is obtained, and further that the resulting crop matures much earlier than that from our southern grown stock. Northern grown seed is at present being imported from Wisconsin, because we have no Canadian supply of this commodity. But why should we have to import our seed from the United States? The very best of seed can be grown in the new districts of northern Ontario.

Of course the growers of seed potatoes in northern Ontario would never be able to compete with the southern planter in the open market, where potatoes are potatoes. But they would not be expected to. The same factors that make the northern grown seed more valuable make also for a smaller yield. These potatoes would sell at an advanced price, because as seed they would be worth more. A number of practical growers have given as their opinion that it pays better to buy northern grown seed at two dollars, than ordinary seed at twenty-five cents a bushel.

As a straight commercial proposition, the growing of potato seed in northern Ontario should be attractive. There is one drawback, however, to private enterprise in this direction in the fact that the early planting season of the southern counties would necessitate the shipping of seed from the north before danger of freezing in transit is past in spring. To overcome this it would be necessary to ship the potatoes down in the fall, and store them in some suitable place until time for distribution in the spring. Such a project would be beyond the means of an individual or an association.

With this in mind, the recent Vegetable Growers' Convention drew up a memorial asking that the Ontario Government take steps toward the establishment of a potato-seed growing industry in northern Ontario, and also that they finance some scheme for the distribution of the seed among the growers of southern Ontario. There is no reason why the growing of seed potatoes cannot profitably be carried on in northern Ontario. Our growers in the south are ready to pay a premium for such seed. Any action which may be taken by the Government toward the establishing of farms for the purpose of potato-seed production, or the appointment of specialists to experiment in the best methods of producing seed, or assisting in the inspecting, grading and distributing this seed among the southern growers will have a far-reaching effect in placing Ontario on the map as a potato-producing Province.

The Town Beautiful

We cannot have a beautiful town without beautiful homes, but beautiful homes alone will not make a beautiful town. What avails it from a civic standpoint to plant trees, shrubs and flowers around our homes, if our streets and street corners are not made beautiful, or if our beautiful homes are separated by areas of weed infested vacant lots? The ninety-one horticultural societies throughout the Province are doing much to improve the home surroundings of their members. Many of them have taken up the planting of trees on the streets, the setting out of flowers in beds in waste places, the establishment of parks, playgrounds and rest shelters. But all are faced with the ugly, weedy gaps in the town beautiful, caused by the vacant lot industry.

Towns and cities have the cure for this disease within their own grasp—the taxation of land values alone. But in our Ontario towns and cities the speculator is encouraged to allow his lots to grow weedy. Our towns add to the burden of the householder who improves his place by taxing him for setting out flowers and shrubs. The work being taken up by societies of trying to beautify these vacant areas, is more than the act of a good Samaritan. It is the act of one who in his pity for the frozen viper, places it within his bosom.

These lots are held for an increase in value. And who is contributing to their increased value? Every citizen who, by building a residence, painting his fence, or planting a vine, makes that city more desirable as a residential city, increases the value of the vacant land in his city. Their value is greatly increased by the work of the horticultural societies. And in return for this increased value, what does the owner of the vacant lot contribute to the society which is enriching him? Nothing but ugliness! If the twenty thousand vacant city lots in Toronto were taxed as they should be, we would quickly be rid of the weedy lot problem.

But in lieu of this method of removing the fundamental cause of the vacant lot, the work of the societies for the placing of this lot under cultivation is a highly commendable one. By this means many of our working people are enabled to enjoy fresh vegetables, which they could not otherwise afford. They are improved physically and morally, through their work in the garden. And from the civic point of view a great stride has been made toward the beautiful when the weedy lot gives way to the vegetable or flower garden.

Publisher's Desk

The front cover of this month's issue of The Canadian Horticulturist shows St. John's Anglican Church, Peterboro. From the standpoint of its setting, it is one of the most beautiful churches in Canada. It is situated on an elevation which slopes in well arranged terraces to the street, and is surrounded by attractive trees. In summer it is covered by a magnificent ivy.

Our readers will notice the absence of our regular index in this number. All the articles will, however, be found in the yearly index on pages v. and vi. This yearly index is a new feature, and one which will make the year's issues of more value when bound for reference.

At the time we go to press we are unable to state in just what form The Canadian Horticulturist will appear for the month of

January. For some months the paper situation in Canada has been growing more acute. For the past three months the cost of the paper used in The Canadian Horticulturist has been practically double what it used to be. Paper is one of the heaviest items of expense the publisher has to meet. So far we have not been able to secure a contract for any considerable amount of our present grade of paper, even at exisiting prices. All the other publications who use book stock are in the same position. The paper manufacturers have offered to supply the publishers with an inferior grade of book paper, for which the price will be almost double what has hitherto been paid for the stock now being used. During December it is probable that the publishers will hold a meeting, and some arrangement may be entered into with the paper manufacturers. Already, one or two leading publications in Canada have commenced to use half tone news stock in place of book stocp. This is a superior grade of paper to that used in the ordinary newspaper. It is being found difficult, however, to secure even this grade of paper. Needless to say, this condition is one of those brought about largely by the war, and one, therefore, which must be faced with the best grace possible. Rest assured that The Canadian Horticulturist will come out in as good form as possible, but do not be surprised should the grade of paper used be different to that which has been used for some years back.

Plans are well under way which should assure the readers of The Canadian Horticulturist with the best numbers during 1917 that we have ever published. This applies to every department of the paper. Through the cooperation of Dominion Fruit Commissioner, D. Johnson; R. M. Winslow, Provincial Horticulturist and Fruit Pests Inspector for British Columbia; President M. Cumming and Prof. P. J. Shaw, of the Nova Scotia Agricultural College, prominent fruit growers in Ontario, and others, a program of articles for each issue of the year is in course of preparation, which will make these issues of unusual interest. Each issue will contain articles not only representative of Ontario conditions, but of the fruit districts of British Columbia and Nova Scotia as well. Quebec, also, will not be overlooked. Capable correspondents are being secured, and the articles will be timely for the month in which they appear. Already a number of prominent fruit growers have consented to contribute, and a very interesting and instructive list of issues of The Canadian Horticulturist is assured for 1917.

For the floral pages similar arrangements are being made. Mr. F. E. Buck, of the Central Experimental Farm, Ottawa, and others in close touch with the needs of the amateur flower grower have been consulted, and a long list of very instructive subjects prepared, which it is planned shall be specially illustrated. We propose to make the illustrations used during 1917 relate as closely as possible to the articles that accompany them, in order that they may thus prove of the greatest possible educational value. Further announcements about these issues will be made later.

The attention of our readers is called to the new poultry department found on page 300. We have had many requests for a column dealing with poultry from the viewpoint of the man who keeps a few hens in his orchard or in his back yard. Mr. Collander will supply this column with monthly hints, which we believe will be of service to our readers.

Ontario Horticultural Convention Held in Toronto

The eleventh annual convention of the Ontario Horticultural Association, held in the railway committee rooms, parliament buildings, Toronto, on November 22nd and 23rd, had for its slogan, "A More Beautiful Ontario." That the work of Societies is getting hold of the towns and cities of Ontario, is evidenced by the fact that this year seven new societies have been formed. This brings the total number of societies in the Province up to ninety-one, with a total paid up membership of over sixteen thousand. The program for the Convention was an exceptionally attractive one, and well repaid anyone who was so fortunate as to attend this convention.

The Rev. G. W. Tebbs, of Hamilton, who occupied the chair, welcomed the delegates to the convention. "Garden lovers," stated Mr. Tebbs, "must have a large vision of their work. While the home garden is very important to individual members of a society, they can never attain the highest good until they take into consideration the beautifying of their entire city." The first step toward town beautification is the cleaning up and beautifying the waste spaces. Mr. Tebbs places great weight on the education of the rising generation to love flowers.

The financial condition of the association, as stated by Mr. C. A. Hesson, St. Catharines, treasurer, is flourishing. Mr. Hesson congratulated the association on the increase in the number of societies that have affiliated with the association this year. Some of the societies have not been living up to their affiliation agreement, in that they do not keep their affiliation fees paid up promptly. Mr. Hesson then read over the names of societies which had already paid up. This had the effect of bringing on quite a stampede of those delegates from societies which were dilatory in paying their fees.

Secretary J. Lockie Wilson, in presenting his report, emphasized the importance of all societies in the Province affiliating with this central association. The association helps to keep up the size of grants to the different societies. After speaking of the growth in the membership of societies throughout the Province, Mr. Wilson stated that the smallest town should own its park, its playgrounds and its civic greenhouse. The school garden work is not growing as rapidly as one could wish. It is not an end itself, but rather a means toward the beautifying of the scholars' home gardens.

A report was now read of the work of all the different societies. Several societies were outstanding in trying out something new this year. In one society no premiums were given. The money was used for civic improvements. Another society has made it a feature to arrange visits to ordinary city lot gardens laid out to advantage. This gives the members who take advantage of these visits a chance to see what can be done in the small garden. St. Thomas, the largest society in the Province, (although fairly closely followed by Ottawa) held this spring a tulip festival, the first of its kind in Canada.

Resolutions of condolence were passed by the convention, to the relatives of three friends of the association who have been removed from our midst since the last meeting. These were Hon. James Duff, Minister of Agriculture, C. C. James, Commissioner of Agriculture, and John Cavers, of Oakville. They were all friends of the association, and their loss is deeply felt.

The program proper began with an address by W. E. Saunders, London, on "Birds and Their Relation to Horticulture." Mr. Saunders took up the subject both from an economic side—dealing with insect eating birds, and from the aesthetic side in connection with the garden. His address was mostly given over to methods for attracting birds. Beef fat and nuts may be used to attract all winter birds. He advises the trapping of the English sparrow, because of its effect in driving away our native birds. The most effective trap is a box with one end held up by a stick to which a string is attached leading to a window. Food is placed under this box, and when sparrows go in to feed, the string is pulled. Summer birds may be attracted by drinking and bathing pools, and bird nesting boxes. His address brought on a very heated argument on the place of the cat. It was decided that the only place for the cat was under ground, and a resolution for the abolition of this animal was passed by the convention.

Dr. L. M. Massey, of Cornell University, gave an address on "The Diseases of Roses." He stated that at present there is not much known regarding these diseases. Mildew, Blackspot, and Crown Gall of roses are doing much damage. Dr. Massey has been appointed to investigate into these diseases.

Mr. Richard Marshall, Chief Gardener in Queens Park, Toronto, gave a rather technical address on "Color Schemes for Formal Flower Beds." He advised anyone who intended to start a bed to visit the best gardens, note both the effective beds and those to be shunned, and get the reasons of the gardener for his placing certain flowers together. In concluding his remarks, he gave the flowers which he found most effective in various sized beds.

At four o'clock the meeting adjourned, to allow the delegates to take advantage of the invitation of Sir Edmund Osler, that they should visit his conservatories. This excursion was much enjoyed by all the delegates. Great credit is due Mr. William Allen, chief gardener, for the beautiful display of chrysanthemums in the conservatory. Tea was served the delegates, and all came away with a feeling of gratitude to Sir Edmund for his kindness.

In the evening we were treated to a beautifully illustrated address by Mr. William Allen. Slides were shown of the different flowers used by Mr. Allen, in their natural colors. Mr. Allen advised us that the perennial border be soaked with liquid manure after the plants have ceased flowering in the fall. He also discouraged the trimming of flowering shrubs. Success in flower growing will only come to him who studies his plants and finds out for himself how to treat the individual subjects.

Hon. Lt. Col. J. L. Hughes gave perhaps the most inspiring address of the whole convention. He dealt with the influence of horticulture on child morals. He stated that there are fewer gardeners in the penitentiary than any other class of society. He made a plea for the beautification of the farms, as well as the cities. By means of school gardens he believes that the boys not only learn to beautify their home gardens, but also their city. Horticulture on the farms might even be made a source of income. He cited cases of where ferns were grown profitably, as well as orchids.

(Continued Col. 3, p. 298.)

Ontario Vegetable Growers' Convention

The Annual Convention of the Ontario Vegetable Growers' Association was held in the railway committee rooms, parliament buildings, Toronto, on November 24th. The funeral of the Hon. Jas. Duff, Minister of Agriculture, which was held on Tuesday—the date set for the convention—necessitated the postponement of the convention until Friday. Telegrams to this effect had been sent out to the secretaries of the different societies on Sunday night, but unfortunately all the members did not receive notice of the change. A number of delegates came Tuesday, and were unable to wait over until Friday. This probably acted to some extent as a damper on the meeting, but a very successful convention was held despite this fact.

President F. F. Reeves, of Humber Bay, in his opening address, commented on the prosperous condition of the association. The special garden competition has been very successful, and has awakened much interest in keeping the individual gardens clean. He suggested that the association make representation to the Department of Agriculture that work be undertaken to compile careful and concise statistics regarding the vegetable growing industry, and further that this and other valuable data be prepared so as to give our Canadian heroes a chance to turn to the business of growing vegetables after they return home.

A motion was passed that the Ontario Vegetable Growers' Association express their deep regret at the death of the late Minister, Hon. Jas. Duff. Another resolution moved that the convention ask the Department of Agriculture to provide for collecting statistics and data of the vegetable growing industry of the Province.

In his report, Secretary-Treasurer J. Lockie Wilson, spoke of the need for greater uniformity in judging the different competitions. He suggested that the judges get together for a short course before going out to judge. They could thus become better acquainted with the standards which the score card tries to represent. Mr. Wilson suggested that work be undertaken to grade vegetables—potatoes, onions and tomatoes, into fancy, No. 1, No. 2, etc., much as we have apples graded at present. The vegetable exhibit at the C. N. E. this year was badly staged. The men in charge did not take enough interest in this exhibit to see that the vegetables were replaced by fresh specimens. The vegetables after the first week, in many cases, decayed, and presented a very uninviting appearance to the visitor.

Mr. S. C. Johnson, Vegetable Specialist, presented his report. The season has been unfavorable for experimental work, but much good has been accomplished by work already done. The spraying of celery is rapidly becoming a common garden practice. Mr. Johnson estimates that at least fifty thousand dollars worth of celery has been saved by this practice during the past summer. Dust mixtures have been experimented with in spraying onions, potatoes and celery. The results have been very satisfactory, but this practice cannot be recommended until further investigations have been carried on.

Mr. J. J. Davis, of London, Ontario, took up the subject of score cards in garden contests. He criticised the score cards formerly used, and made several suggestions where it might be improved. A lively discussion followed, and the following resulted: (1) straightness of rows, 10 pts. (2) Arrangement of space, 10 pts. (3) Neatness and cleanliness around yards and buildings, 10 pts. (4) Neatness, care and cultivation of the garden itself, 40 pts. (5) Cleanliness of fence corners and headlands, 10 pts. (6) Closeness of planting and marketable value per acre, 20 pts.

Mr. A. McMeans, Brantford, gave a very instructive address on "Home Grown Vegetable Seed." The slogan of the vegetable grower should be "quality," not "quantity," when buying his seed. He instanced two plots of vegetables of the same variety, the seed of which cost the same, but was from different growers. The crop on one plot was worth forty dollars more than that on the other. The great difference in strains of the same variety is caused by a difference in the ideals of contract growers. In many cases a description of a variety in the seed catalogue is vague. Every variety should be accurately described, and the type photographed for the benefit of the seed grower.

In the discussion that followed, Prof. Crow stated that they have tried out Canadian grown seed. The best seed comes from the growers who have carried on this business longest. Prof. Crow thinks the solution of the seed problem is in obtaining someone to grow seeds especially for the Ontario Vegetable Growers' Association. There is money in it for anyone who will take up this profession.

Mr. Henry Broughton, of Sarnia, gave an address on "The Field Cultivation of Early Potatoes." Mr. Broughton was instrumental in forming a co-operative company, which imports its potato seed from Wisconsin. The average yield of potatoes in the Sarnia district is 150 bags per acre. Mr. Broughton went fully into the cultivation of potatoes, and presented an estimate of the cost of producing one acre of potatoes. In his opinion it cost about eighty dollars per acre. In Ontario we need but two varieties of potatoes, an early and a late variety. The potato association was made necessary when the farmers around Sarnia commenced to cater to the early potato trade. An order may come in from Toronto for one car of potatoes to be delivered next day. By co-operating, a number of farmers can get to work digging potatoes to fill this order. Thus eight or ten men, each digging fifty bags of potatoes, can fill the required car. This would be impossible without co-operation.

Mr. Broughton's reference to the importation of potato seed brought on a discussion as to the advantages of northern grown over southern grown seed, and the following resolution was passed: "Resolved that the Vegetable Growers' Association of Ontario, having in mind the great importance to the market grower of the early potato crop, and the difficulty of securing reliable seed, do hereby respectfully urge the appointment of a specialist to undertake the experimental work with this crop along the line of working out the best methods of producing high class seed, and also with the object of improving, by selection or breeding, our present varieties.

"The Standardization of Vegetables," was dealt with by C. E. Durst, Urbana, Ill. There is a great need for standardization in vegetable seed. There are altogether too many varieties on the market, and worse still, one variety may pass under several names. The better the variety the more names, for instance, the Earliana tomato has between thirty and forty different names. Mr. Durst suggests that, (1) Name be composed of as few words as possible—all superfluous adjectives should be dispensed with. (2) A name already in use for one variety should not be used by another. (3) After names have once been given they should never be changed.

Mr. T. M. Mulligan, Ottawa, and T. Delworth, Weston, took up the subject of Skinner Irrigation. The irrigation system has been of untold value to the vegetable growers during the hot, dry season just passed. Mr. Delworth stated that irrigation enables him to grow two crops on his land in the same season. He took off a crop of early potatoes in late July, then planted celery, and is now marketing twenty-seven thousand off one acre. This would have been impossible without irrigation. Mr. Mulligan has his overhead pipes on posts 6 ft. 6 in. high, to allow cross cultivation. Mr. Delworth questioned the advisability of this. He thinks it better to have pipes not more than four feet high. They do not sway in the wind, and it is easier to reach them if a nozzle becomes clogged. Mr. Cook has been receiving much satisfaction from the Skinner System, which he has suspended on heavy number seven wire. By this means he has few posts in his field, and can drive underneath the pipes. Mr. O. J. Robb, Vineland Station, stated that it costs $3.60 to irrigate one acre for ten hours, giving it one inch of water.

Mr. Roadhouse, Deputy Minister of Agriculture, then came before the convention, bringing the greetings of the Government, and the thanks of the Department for the thoughtfulness of the association in postponing the convention on account of the funeral of the late Minister.

Greenhouse tomato growing was discussed by James D. Nairn, Hamilton. Mr. Nairn is a well known tomato grower. He grows lettuce as a winter crop, because his tomatoes in the winter have been susceptible to blight. Tomatoes are planted about the first of January, for spring growing. But two varieties are grown in his houses. These are Carter's Sunrise, of which about ten thousand plants are grown, and about five hundred plants of Bonnie Bess.

Mr. Nairn has been troubled for a number of years with a peculiar blight among his tomatoes. The Department of Plant Diseases at O. A. C., Guelph, has been working for some time on this disease, but so far have not found a remedy. Mr. Nairn grows his tomatoes on the ground, rather than on benches. Tomatoes should be kept growing from the start, and kept watered from underneath. He places a straw mulch to prevent splashing.

Chas. Syer, Bartonville, gave the convention his methods of growing celery. A paper sent in by Paul Worth, Cornell University on "Successful Growing of Cabbages," was not read, because of lack of time, but will appear in the annual report.

An inovation was here introduced, when Mr. John Campbell gave an address on "Onion Growing," illustrated by moving pictures of the different phases, presented by Mr. S. C. Johnson. These pictures have been taken with the idea of using them in lecture work throughout the country. They should certainly help to create an interest in the industry wherever they are shown. A noteworthy feature about them is that the films are fire proof. It will therefore be perfectly safe to show them in any lecture hall.

Canadian Horticultural Convention

(Continued from page 297.)

The second day of the convention began with a very interesting paper on "Vines and Their Uses," by Mr. Macoun, Dominion Horticulturist.

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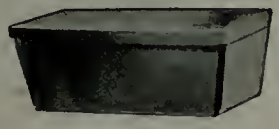

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Miss Blacklock, of Meadowvale, gave an illustrated address on "Hardy Asters and Other Perennial Flowers."

Mrs. R. B. Potts, of Hamilton, in an address on "The Press in Relation to Horticulture," stated that Canada has a system of gardening of her own. There is, therefore, no foreign publication which can adequately fill the requirements of the Canadian gardener. He must get his ideas from a Canadian publication.

The following officers were elected for the ensuing year: President, Dr. F. E. Bennett, St. Thomas; First Vice-President, Prof. Crow, O. A. C., Guelph; Second Vice-President, Wm. Hartry, Seaforth; Secretary and Editor, J. Lockie Wilson, Toronto; Treasurer, C. A. Hesson, St. Catharines; Hon. Director, Rev. G. W. Tebbs, Hamilton; Auditors, Mrs. R. B. Potts, Hamilton, and Miss Mary Yates, Port Credit; Representative to Canadian National Exhibition, W. R. Burgoyne,, St. Catharines; Representatives to Am. Civic Association Convention, J. Lockie Wilson, J. H. Bennett, Barrie, and Rev. G. W. Tebbs; Representative to Civic Improvement League of Canada, R. B. White, Ottawa; Representative to School Gardens Association of America, C. B. Hamilton, Toronto; Directors, Rev. A. H. Scott, Perth; Walter T. Ross, Picton; R. Whorley, Haileybury; T. D. Dockray, Toronto; James Ogilvie, Hamilton; John Grieves, Seaforth; E. E. C. Kilmer, Brantford; Dr. J. A. Bothwell, Stratford; C. D. Brown, Walkerville.

PERRY'S ALPINES AND PERENNIAL SEEDS

have an universal reputation. Unique collection containing many new varieties unobtainable from any other source.

Perennial, hardy, and adapted for Canadian climate.

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Bedding plants, hardy herbaceous perennials and summer flowering bulbs. Planting list for 1916—17 sent on request.

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NURSERY STOCK

We have a large quantity of fine stock to offer for spring planting. Write at once for our FREE Catalogue of fruit and ornamental trees, small fruits, shrubs, roses, etc. Address,

J. H. McCOMB'S UNION NURSERIES
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ORCHID GROWERS

The Finest Stock in the World

Catalogue on Application

ST. ALBANS - ENGLAND

"It Might Have Been"

Look at the price of apples this year: Were good apples ever worth so much? Dealers cannot fill orders at any price.

In 1916 few orchards were well sprayed, many were not sprayed at all. If there had been more "Well-done" spraying, there would have been more good apples this winter.

To Spray Is Not Enough

It is necessary to be sure of the quality of the spray material. It is a waste of money and a loss of labor to use inferior or cheap sprays. If you would be sure of results, be sure of the quality of the spraying material and the efficiency of the spraying machine.

We recommend Niagara Brand Soluble Sulphur, Lime Sulphur, Arsenate of Lead, and Niagara Dust Spray, and we guarantee the quality of everything that bears our name or trade mark.

The same guarantee that we give for the quality of our sprays is given for the efficiency of our spraying machines, both for liquid and dust sprays.

Do not place your order for 1917 until you get our proposition.

Niagara Brand Spray Co, Limited
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Remember, "Wherever Fruit Excels Niagara Brand Spray is used."

Stevens' Potash Fertilizer destroys wire worms, click-beetles, white grubs, cut worms, army worms, gypsy moths, brown-tailed moths. Address—
GEORGE STEVENS, . Peterborough, Ont.

Preparedness Pays!
Order Now—Money Saved.
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Write for Prices.
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TREES & SHRUBS
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BEESWAX 34 Cents a pound Cash
We will pay the above price for pure beeswax, delivered at Bedford, or if you prefer to get supplies in exchange we will allow you a higher price in trade.
F. W. JONES & SON, Bedford, Quebec
Manufacturers of Beekeepers' Supplies

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We offer free this book that tells you about many of the diseases afflicting horses and how to treat them.

KENDALL'S SPAVIN CURE

is a safe and reliable remedy. It will cure Ringbone, Splint, and other bony enlargements. It is also a reliable remedy for Curbs, Sprains, Bruises, Cuts and Lameness. It does the work safely and at small expense.

Mr. Carl Anderson, Grand Prairie City, Alta., writes: "Please send me a copy of your *Treatise on the Horse.* I have used Kendall's Spavin Cure for swellings, galls, and all kinds of lameness, and find it a success."

Kendall's Spavin Cure is sold at a uniform price of $1.00 a bottle, 6 for $5.00. If you cannot get it or our free book at your local druggist's write us

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POULTRY YARD

[In accordance with our policy of making The Canadian Horticulturist of the greatest service to our readers, we have, at the request of a number of our readers, started a poultry column in this issue. This is to be a regular feature of our magazine. Poultry and horticulture go well together. There is, perhaps, nothing which will more quickly rid a piece of garden of the troublesome white grubs or of other insects than poultry. Even the man who has but one lot in the city may keep a few hens and thus supply his family with eggs which have not yet lost their freshness. Our notes on poultry will not be written with the large commercial poultry yard in view, although our suggestions will apply to the larger plants. Our object, however, is to give information suited to the man with a small flock of hens.

We have secured for this work the services of Mr. J. H. Callander, Peterboro. Mr. Callander has had considerable experience in poultry journalism, as Assistant Manager of "Poultry Success" at the same time that he was editor and manager of "The Ohio Poultry Journal." Since then he spent some time as editor of "Poultry Advocate," but is now located in Peterboro. Mr. Callander is an enthusiast, and under his management we expect it will be one of the best departments in the paper.—Editor.]

Repairing.

If not already attended to, go over the poultry quarters and see that they are made comfortable for winter. An open crack too near the roosts, may undo all the season's work in raising the young stock, by starting a cold in the fowl that is nearest the draught. This cold usually develops into roup. Remember a draught is worse than roosting right outdoors in a storm. Stop the draughts before the mischief is done.

If your poultry house had damp walls last winter; if in cold weather a heavy coat of frost collected on walls and roof, your ventilation was poor. The quarters are too close. The best way to get ventilation without a draught is to take a few lights of glass out of the windows and cover the window with plain factory cotton. This allows a free circulation of air, and carries off the dampness. Cold air, if dry, will not harm the fowls. It is in the unventilated house (where the air is damp) that frozen combs, unhealthy fowls, and unproductive hens are found.

Profits.

Try estimating the profit on a hen for a year in this way: See if one egg a week from a hen all the year round, will pay for her feed. If so, then if she lays two eggs a week on an average, there will be 52 eggs clear profit. If she is a 150 egg hen and lays three eggs a week, she has given you 104 eggs or 8 2-3 dozen as her profit. Specialists who breed and feed for eggs, have produced the 200 egg hen, so that allowing more than an egg a week, or one-quarter of her product, she has given at least ten dozen eggs more than the value of her food. At an average of 30c a dozen this shows a margin of $3.00 on the profit side in favor of the 200 egg hen.

Keep Poultry Busy.

The most important point to be observed when keeping fowls in confinement is to keep them industriously at work. This is the golden rule in managing fowls in large numbers, and is the key to success. Make them scratch for their food.

Feather Eating.

Feather pulling is usually caused by a fowl getting a scratch from which blood gets on the feathers. The others discover this, and in the craving for meat, one of their natural foods, they attempt to eat it and the feather comes out. They quickly find that the root of the feather is soft and meaty, and go back for more, till the habit gets established. It is generally a well (grain) fed flock that gets its feed where it is quickly picked up, and has nothing to do till next feeding time, that develops this bad habit. When first noticed remove the fowl that is being plucked and see that its wound is healed and washed clean before it is put back. Give fresh cut bone, if possible, or meat in some form. Feed in deep litter where the hens must work busily most of the time to get their feed.

Markets.

This a good time to arrange for a good market. Eggs are scarce, and retailers or private consumers will be glad to contract at a good price for a regular supply.

Provide Water.

Over ninety per cent. of the egg is water, so that water is of great importance to the laying hen. She must have it, and if you are particular about the quality of your eggs, give her plenty of good, clean water in clean utensils.

Grading Your Hens.

It will pay you to study your flock and find out which are the layers. The busy hen that is first off the roost in the morning, and last to get on it at night, can be counted on as doing her share for the egg basket.

That drone that wants her feed on a trough where it will be no trouble to fill up, and then squats around till next feed, had better be used for next Sunday's dinner, or go to market in the next batch of culls. She is eating her head off. Your house should accommodate only the profitable layers. It is not fair to them to charge up the food of the lazy sister to them.

PRODUCTIVE BEEKEEPING
is the title of a new book of 326 pages by Mr. Frank C. Pellett, State Apiarist of Iowa.
As the name of this book indicates it is especially adapted to the needs of the practical beekeeper. Not a discussion of scientific principles, but of practical methods.
Sources of Nectar, Wintering, Marketing, and Laws that Concern the Beekeeper, are titles of chapters of special interest.
Regular price $1.50 postage extra.
We offer this latest book with the American Bee Journal one year, both for $2.00, Canadian postage 15 cents extra.
134 illustrations, attractive cloth binding.
AMERICAN BEE JOURNAL, Hamilton, Illinois

Annapolis Valley

Eunice Buchanan.

From the warm Indian summer of November 9th, when the thermometer stood at 65°, and pansies were gay in the garden, we were plunged into winter on November 13th. On the 14th a heavy fall of snow continued all day and left the roads good for sledding fruit to the warehouses. There is little, if any, frost under the snow. Baldwins and late apple trees are shedding their leaves on the snow.

A shipment of potatoes, packed in 96 quart barrels, were sold for $3.50 a bbl here. Vegetables are high priced. Onions are not grown commercially.

Apples are selling well. Kings brought $4.30 for No. 1, and Wagners sold for $3.00 by the car load for No. 1 and No. 2. Anxiety is felt over the non-arrival of the steamer Rappahannock in England. She took a shipment of 20,000 barrels of apples, largely from our valley.

(Note.—The daily papers report this steamer was torpedoed and sunk and that her crew of forty lost their lives.—Editor.)

Apple grading machines are beginning to make their appearance in the warehouses. A locally-made grader costing $50 has been in use for two years and is still giving satisfaction. It is composed of a series of grooved, sloping frames having holes of gradually increasing diameter, over which the apples work with a set of plungers coming up simultaneously.

Labor is two or three dollars a month dearer than last year, but it has not been so scarce that crops could not be harvested, although many men have enlisted. In Annapolis county colored men work for about $20 a month. There are many of them there, but we have few negroes nearer here than Kentville, ten miles away.

Okanagan Valley Notes

The big apple crop of the Okanagan has provided the rush of the season. There has been a universal shortage of picking and packing help, and while this condition was not so apparent in the crops that were a little short in their yield, it has only been possible by working at more than ordinary pressure to get the apples off the trees and into the packing houses before the frosts came. At the time of writing, the middle of November, the Okanagan is experiencing its first touch of winter. If any damage has been caused by the brief cold snap, it will be from storing the fruit in buildings not weather proof. There are very few packing houses in the Valley that are really frost proof. Some that are merely shells of buildings, put up with the idea of having all the apples out by frost time, are still full, owing to lack of packing help or car shortage. There has been damage in many buildings of this type, but so far as can be ascertained the damage from this source will not amount to more than a few carloads for the entire Valley.

A car shortage has been an irritating situation which the Okanagan has had to contend with lately. The C.P.R. has not been able to begin to meet the call for refrigerator cars. Every point in the Valley has felt the inconvenience of this in not being able to move out their packed fruit as fast as it came in unpacked from the orchards. This congestion has severely tried the capacity of the warehouses, and in some cases buildings wholly unsuitable have had to be pressed into service to store unpacked apples. The matter of the car shortage was put up strongly to the railway company and the Railway Commission, and paper-lined

"It is Such a Saving in Labor I Must Have a Power Outfit."

In his sixth order to us, Mr. J. C. Harris, of Ingersoll, Ont., says more for the Spramotor than our most enthusiastic advertisement. A man may buy a thing once and be dissatisfied, but when he comes back for additional purchases, there is only one conclusion that we can come to, and that is that article must be all right. We never claimed more for the Spramotor than that it would do the work required of it effectively and economically, and in all things give satisfaction. And letters which we have received and are constantly receiving from farmers all over Canada, signify that our statements have been met with a service that is making staunch friends for the Spramotor wherever it is used. Over 100 Gold Medals and Special Awards to the credit of the Spramotor, show that these expressions of confidence are merited. Suppose you write now while the matter is fresh in your mind for a copy of our booklet on crop diseases.

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Made in Canada. No Duty to Pay.

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The following beekeepers will be able to supply Bees and Queens in any quantity for the season of 1917.. Order early.

THE ROOT CANADIAN HOUSE,
54-56 Wolseley St., Toronto, Ont.
Full colonies—Nuclei—pound packages. Queens of Canadian or U.S.A. stock. Three banded golden Italians.

F. W. JONES & SON,
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Italian bees by the pound, "Made in Canada," also best Italian Queens.

E. E. MOTT
Glenwood, Mich., U.S.A.
My Italians resist well the E. Foul brood, Northern bred, hard, prolific, gentle.

J. P. MOORE,
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Try Moore's Strain Next Year.

J. I. BANKS,
Dowelltown, Tenn.
Italian "Queens of Quality," Not the cheap kind.

H. W. FULMER,
Andalusia, Ba.
Importer and Breeder Gray Caucasian Queens and Bees.

R. V. STEARNS,
Brady, Texas.
My catalogue tells what good Queens I have and how early I can ship bees by the pound.

J. H. M. COOK,
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New Jersey bred Bees and Queens from my home apiary, Essex Co., New Jersey.

M. C. BERRY & CO.,
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Select bred Italian Queens and swarms of bees in packages.

W. A. LATSHAW CO.,
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Famous Hand-Moore Strain Italian Queens and Bees.

W. R. STIRLING,
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Breeder of Fine Italian Queens.

F. L. BARBER,
290 State St., Lowville, N.Y.
Breeder of Italian and Gray Caucasian Queens. Free Circular.

J. A. SIMMONS,
Sabinal, Texas.
Bees by the carload, Italian and Banat Queens.

JOHN G. MILLER,
723 C. St. Corpus Christi, Texas.
Three banded Italians. Circular Free.

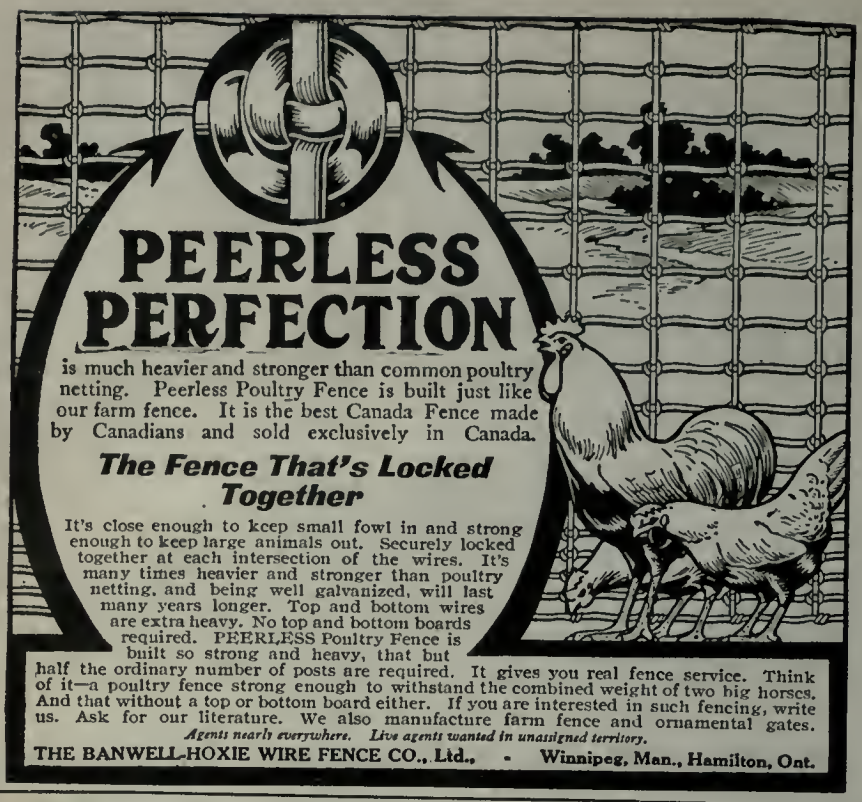
H. C. CLEMONS,
R. D. 3, Williamstown, Ky.
Three band Italians, bred for business.

THE DEROY TAYLOR CO.,
Newark, N.Y.
Northern Bred Italian Queens and Bees.

BEESWAX WANTED,
Highest market price paid in cash or supplies.
The Tillson Co., Ltd., Tillsonburg, Ont.

WM. BUEGLASS,
R. R. No. 3, Bright, Ont.
Northern bred Bees.

Queen and Bee Breeders should list their names in our Beekeepers' Directory. Order now for the next four months. Write for special offer.



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The Fence That's Locked Together

It's close enough to keep small fowl in and strong enough to keep large animals out. Securely locked together at each intersection of the wires. It's many times heavier and stronger than poultry netting, and being well galvanized, will last many years longer. Top and bottom wires are extra heavy. No top and bottom boards required. PEERLESS Poultry Fence is built so strong and heavy, that but half the ordinary number of posts are required. It gives you real fence service. Think of it—a poultry fence strong enough to withstand the combined weight of two big horses. And that without a top or bottom board either. If you are interested in such fencing, write us. Ask for our literature. We also manufacture farm fence and ornamental gates.

Agents nearly everywhere. Live agents wanted in unassigned territory.

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We have a fine assortment of Apple, Pear, Plum, Cherry, Peach and Ornamental Trees, Grape Vines, Shrubs, Roses, Hedge and Summer Fruit Plants, all well assorted. Send for Catalogue. We deal direct. No Agents. Over 35 years at it.

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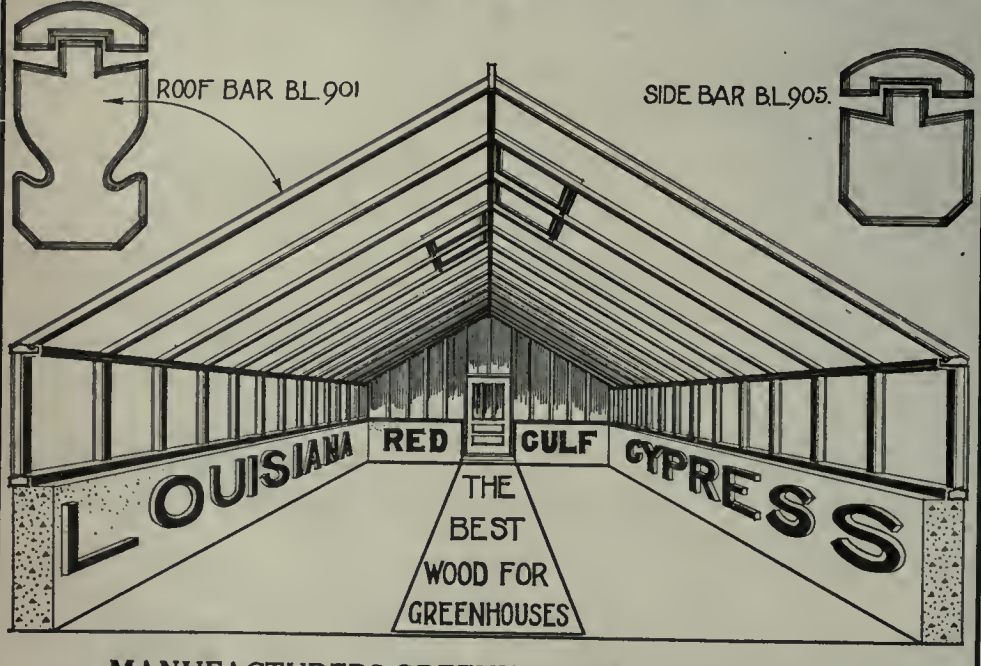
GREENHOUSES



MANUFACTURERS GREENHOUSE BARS AND SASH

Batts Limited

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box cars equipped with charcoal heaters were put into service. The supply of this variety greatly exceeded the number of proper refrigerators, but still the required number of cars has not been reached, nor is it likely to be. Low temperatures may be expected through the Rocky Mountains now right along, and it is a question whether the makeshift of heated box cars will stand the weather, even with the heaters.

The packing problem is getting to be a serious one for the Valley. This season a large proportion of this work has been done by young women. They gained their knowledge for the most part from the winter packing schools which the Provincial Department of Agriculture has put into operation every year to help meet such emergencies. Nevertheless, it is doubtful if the situation could be met another year in this way, if the apple crop showed even an ordinary increase. One suggested remedy advanced is to bring up from California and elsewhere professional men packers, who move around the country doing nothing else but packing fruit. Their capacity for work is naturally greater than even the most expert young women, and it might be the means of saving much valuable time another year.

The Okanagan is breaking its own records this year in the matter of output. In one week of October, an increase of seventy per cent. over the corresponding week of last year was apparent. In this period of the present year two hundred and seventy-seven cars of fruit and vegetables left the Okanagan. The total for the same week twelve months ago was only one hundred and sixty-four. The Okanagan United Growers, the biggest shipping body in the Valley, has been sending out lately nearly a hundred cars of apples alone per week. Other bodies have also increased their business over last year. This same organization, it is learned, has now shipped out more fruit and vegetables this year than they handled in the whole of 1915. There is still much to move yet, if the cars can be had and the weather does not get too wintry.

The growers cannot complain of the prices their apples have been bringing. Few sales have been made on any other basis than a definite f.o.b. price. This is the only way to sell fruit from the grower's standpoint. For their No. 1's, the orchardists have been getting not less than two cents a pound, and often two and a quarter or two and a half for outstanding quality. No. 2's and No. 3's have been realizing to the grower as a minimum about a cent and three-quarters and a cent and a half respectively. The orchard run pack, which has come into favor in some quarters, has realized a price somewhere between the No. 2's and No. 3's.

A gratifying feature of this year's shipping operations has been the wide distribution obtained for Okanagan fruit by those responsible for the marketing. The Prairies, of course, absorbed a very large part of the output. This in spite of the quasi-patriotic attitude of some grain growers' associations, who decided that since the growers in the Okanagan were having a good year, it meant that the prairie farmers were going to be made pay more for their apples, and therefore they imported American apples and cheerfully paid the increased duty. But this feeling was not widespread. Judicious advertising undoubtedly helped sales at the larger prairie centres, not only by emphasizing the foolishness of buying American fruit, but also by pointing out the seasonable varieties. Better business has also been done at the Coast. Many carloads of Okanagan apples went east as far as Toronto and Montreal. One car of extra fancy grade McIntosh was bought for $1.40 f.o.b.

Redpath SUGAR

2 and 5 lb. Cartons—
10, 20, 50 and 100 lb. Bags.

Few food products in any country have ever equalled the Sixty Year Leadership maintained by Redpath Sugar. Buy it in original packages to be sure of getting the genuine REDPATH.

"Let Redpath Sweeten it." 5

Made in one grade only—the highest !

HIGHLY CONCENTRATED HOME BOILED LIME SULPHUR SPRAY $6.00 per bbl. "BARTLETT BRAND" F.O.B. and Cash

Each barrel contains 133 lbs. sulphur, 66 lbs. Beachville Lime.

The Bartlett Brand is proving itself to be the most effective spray on the market, and the price means a big saving to you. 1916 sales were (five times) greater than 1915. A satisfied customer is my best advertisement. Order Direct. No Agents.

Write for further information.

Norman M. Bartlett, Mfg. - - Beamsville, Ont.

KELWAY'S DELPHINIUM SEED

is as WELL KNOWN in CANADA as elsewhere. But it is not the ONLY

SUPERIOR STRAIN OF FLOWER

(or other) SEED grown or offered by us.

All Our Seeds Are The Best

MEDAL OF HONOR, Panama Exhibition for the best collection of annual flowering seeds, 1915.

GOLD MEDAL—Royal Horticultural Society of England, 1916.

275 Other Grand Prizes—Gold Medals, etc., for finest horticultural exhibits at International Shows.

Seedsmen, write at once or cable to

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for special quotations for 1917

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Northern Grown Stock
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Our stock is first-class and our prices the lowest consistent with sterling quality.

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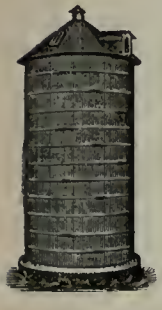

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HON. G. HOWARD FERGUSON,
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shipping point, and then sent clear to Toronto, where it must have retailed for between $4 and $5 per box. Sales of B. C. apples on the prairies have been facilitated by the shortage of cars, which has been tying up Washington shippers even worse than this province. Firms who have been indifferent whether they got their fruit supply from British Columbia or Washington, are thus in some measure being forced into a little more patriotic consideration of the matter.

It is in the export business, however, that the greatest expansion of apple markets is brought to light. To Europe, Asia, Africa, and Australia large shipments of apples have been sent from this Valley. Straight west across the Pacific new markets have been found in Hong Kong, Shanghai, and the Philippine Islands. With the Antipodes a tremendous volume of business has developed. By a contract made at the beginning of the year, the Okanagan United Growers are shipping more than fifty carloads of apples to Australia and New Zealand, and other firms in the Valley have also shipped there. From South Africa trial shipments in previous seasons have brought substantial orders, and a number of cars have been dispatched thence. Shipments have also been made from the Okanagan to South American points. The British market is being supplied increasingly every year with British Columbia apples. It is difficult to estimate what the business amounts to at present, probably about fifty carloads from all Okanagan sources. The British trade is a valuable connection, but it is somewhat hampered just now by the scarcity of ocean tonnage.

Okanagan apples were well to the fore at the Calgary Soil Products exhibition held in October. A fifty-box exhibit entered in the name of the Okanagan United Growers by the Summerland Fruit Union, one of its local bodies, gained first prize in its class, defeating other districts of the province. This fruit came from the packing houses of the Summerland Union, under the management of John Lawler, who at the last Spokane International Fair won the world's apple packing championship against all comers. Summerland and Penticton also had other winning exhibits at this show.

N.S. Fruit Growers' Meeting

The Annual Meeting of the Nova Scotia Fruit Growers' Association will be held at Lawrencetown, Anna. Co., Jan. 16th, 17th and 18th, 1917. This is a three day convention of all the fruit interests in the Province; it is one of the oldest associations in the Dominion, having been organized in 1863.

SMALL FRUITS

Raspberries, Gooseberries, Red Currants, Black Currants, Strawberries, Rhubarb Roots, etc., etc.

WM. FLEMING
NURSERYMAN
Owen Sound, Ontario

Fruit Growers
say the
GEORGIAN BAY PRUNER

is the best they have seen. It cuts easy and close, is strong and of best material. A schoolboy can use it. For particulars apply to

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Hanging Baskets and Fern Pans

We make the "Standard" Pot, the best Pot in the world—uniform, best of clay, well burned, in every respect superior to all others.

All our pots have rim on shoulder, thus allowing them to be placed together perfectly and preventing breakage in shipping and handling.

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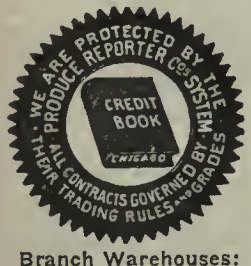

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OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto Market, we have established branch warehouses with competent men in charge at Sudbury, North Bay, Cobalt, Cochrane and Porcupine. In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies.

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88 Front St. East, Toronto

Niagara District

F. G. H. Pattison

The shipments of apples sent out from the Grimsby-Winona section of the Niagara District this year, were superior in quality to those of any other apple district in the Province. The reason was that the orchards in this section were more thoroughly sprayed and better cared for this season than in the other districts.

Some of the apple orchards in the Winona section have had an astonishingly clean crop for this season. In one of these orchards, which I personally inspected, scarcely a wormy apple could be found, and there was practically no scab. The output from this orchard was over 400 barrels, ones and twos, with about 50 per cent. of ones. The threes and culls were mostly sold in the orchard to farmers and others coming from far and near, to purchase their apples from the fruit belt below the mountain, there being practically no apples south almost to Lake Erie. These apples brought 50 cents a bushel, the buyers picking them up from under the trees.

Following are the results of a test of the dry spray experiment conducted in the apple orchard of W. Geddes, North Grimsby township, by Prof. Caesar, Provincial Entomologist.

Typical trees were selected, and 100 apples taken from each. From the first tree, out of 100 apples there were 2 wormy, none scabby. The second tree had 1 wormy and no scab. In Greenings, tree No. one had 4 wormy, and

Write to-day for the 1916-17 edition of HALLAM'S FUR STYLE BOOK.
32 Pages illustrated, which shows beautiful stylish fur sets and fur coats moderately priced, and also gives full particulars of HALLAM'S ZOOLOGICAL CONTEST.
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WE wish to announce that we have a fine stock of Strawberry and all other Small Fruit Plants, Asparagus, Rhubarb, Seed Potatoes and Seed Corn, which we are offering for Spring delivery. Our new catalogue will come from the press about January 1st, and will be mailed free to all who apply for it, as well as to all who have formerly applied for the catalogue.

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Port Burwell - - - Ontario

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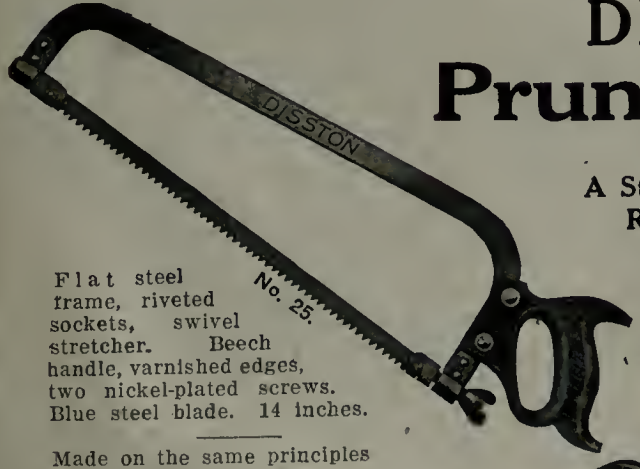
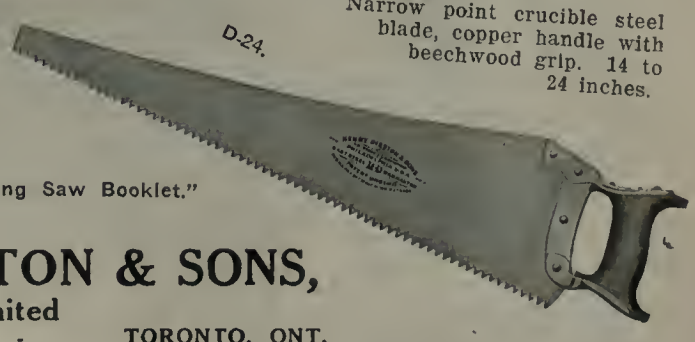
A Style for Every Requirement



Flat steel frame, riveted sockets, swivel stretcher. Beech handle, varnished edges, two nickel-plated screws. Blue steel blade. 14 inches.

Made on the same principles as our Disston handsaws. Designed to withstand maximum "thrust" without buckling, and for easy, rapid cutting.

Flat steel back, narrow tapered point, Beech handle, varnished edges, three brass screws. Handle has extra large handhold for use with gloved hand, swivel stretcher, blued steel blade. Blade 18 inches to centre of holes.



Narrow point crucible steel blade, copper handle with beechwood grip. 14 to 24 inches.

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GLASS GARDEN BUILDERS, LIMITED

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SKINNER SYSTEM OF IRRIGATION

Control complete. Prevents drought losses. Reduces labor bills. Increases profit. Special Portable Line for $11.75. Send for new Bulletin.

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POTASH FERTILIZER

No. 1 unleached wood ashes containing a high percentage of potash. Sold in any quantity. The best and cheapest fertilizer for gardens, small fruits and orchards.

Prices reasonable—for particulars write

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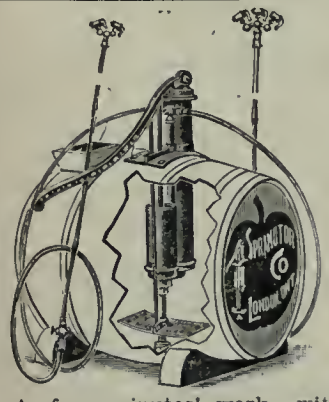

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You find it good business to insure your life, your health, your home, then why not insure your crops upon which your livelihood depends? A few minutes' work with a Spramotor at suitable intervals will rid your crops of fungus diseases, and assure their arriving at maturity in that hard, healthful condition that secures first-grade prices. We have Spramotors adapted for every kind of spraying in every part of the world. Let us quote you prices and terms to meet your own special needs. Meanwhile write for a copy of our booklet, which describes the various styles of Spramotors and gives valuable information about the treatment of crop diseases. Made in Canada. No duty to pay.

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no scab; tree No. two, no worms and no scab. A Spy tree had six wormy and six scabby out of 100. On 135 apples from two Russet trees, there were no worms and no scab. The few worms found in this experiment were all what are known as "side" worms.

On the trees sprayed with the dry spray by means of the blower, 90% of the San Jose scale was destroyed. These results appear very satisfactory, and were more favorable than some of the blower tests made elsewhere.

Speaking of the dusting of fruit trees and grape vines for the destruction of insect pests, rather than by the old method of spraying, Prof. Caesar recommends a dust of 80 per cent. sulphur and 15 per cent. powdered arsenate of lead. This method, he claims, is 8 times as fast as the spraying plan, and he has secured just as good results in the destruction of the codling moth and ridding apple trees of scale. He also is of opinion that it will be necessary to have further extensive experiments in this line of work.

In St. Catharines neighborhood not many apples were packed this year, but the fruit was fairly free from scab, except on a few Spys and Greenings.

Apples for the winter in Old Niagara will cost the consumer much more this year than formerly, as the demand is already exceeding the supply, while the fruit, as a result of the excessive rains of the early season, and the heat and drought of the later months, is not nearly so fine as the people would like.

Vegetables of all kinds are scarce and high-priced, and the result will be that people's supply for the winter will be much smaller than in past years.

Canning factories bought up a large portion of the Keiffer pear crop, paying about 1 cent a pound. Anjou, Clairgean and Seckel pears were in good demand, at from 50c to 75c per basket.

In Lambton County peaches and pears were plentiful this year, but apples were small and scabby, many orchards not having been properly sprayed, owing to wet weather and lack of help in the spring.

A shipment of pears from Grimsby to Glasgow arrived there in excellent condition, and brought the following prices: In half boxes, Duchess, $1.92 to $2.10; Clairgean, $2.05; Anjou, $2.16 to $2.64; Basc, $2.40.

A report from Welland states that nearly 200 tons of grapes during the present fruit season have been bought by the foreigners residing in the town of Welland, for the purpose of making wine. The majority press out the juice, place it in barrels, and drink it in that condition. The price paid was from $25 to $30 per ton, so between $5,000 and $6,000 were expended for this grape juice. The Welch Grape Juice Company, of St. Catharines, bought a large amount of Concord grapes around Grimsby, paying from $35 to $40 per ton for them.

Mr. A. G. Harris, Pomologist at the Vineland Experimental Station, has resigned his position, to manage a large fruit plantation in Colorado. During the past summer Mr. Harris devoted most of his time to the new advertising scheme of the Niagara District Publicity Association, and was quite successful in his canvass of the fruitgrowers The Association label has been largely used this season, and better results obtained than under the 1915 plan.

It is reported that Canadian canning concerns—the Dominion Canners being particularly mentioned—are finding that, owing to the shortage of this year's pack, they

Icing Sugar

For frosting cakes, making bonbons and other confections without cooking. Ask for it by name at your grocers.

1-lb Cartons only

Lantic Sugar

is packed at the factory in dust-tight cartons. Yours is the first hand to touch it.

2 and 5-lb Cartons
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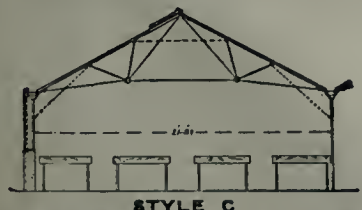
FRUIT MACHINERY CO.

INGERSOLL, ONT.

Manufacturers of the Ontario Power Sprayer Model 2-B, the handiest of them all. Engine fills the tank. Also a complete line of Apple Evaporating Machinery and power evaporator equipment. Our complete power systems for evaporating as we install them are practical, sanitary and labor saving.

Write for free illustrated catalogue on spraying and evaporating.



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This is a New Model for 1915, the result of fifteen years' experience in Greenhouse construction for Canada.

Dotted lines show location of wind-ties that positively prevents vibration of the sash.

Supplied in widths up to 25 feet 2¼ inches from post to post.

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AN XMAS PRESENT
your friend will not forget

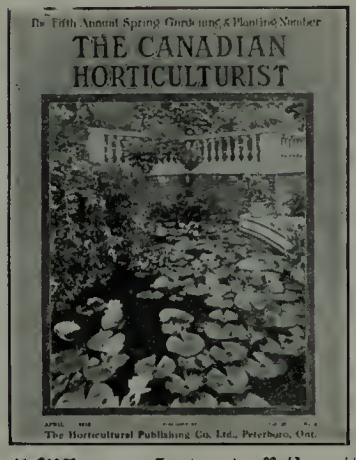
AGAIN you are faced with the problem of Christmas shopping. The many drains which are being made upon your pocket by various patriotic funds make you wish to economize on your presents this year.

Yet you must show that you remember your old friends. If your friends are interested in fruit growing, or in gardening, whether flower or vegetable, (and who is not) why not send them The Canadian Horticulturist for a year?

The Canadian Horticulturist comes into the home every month, fresh, helpful, readable. It will be a lasting reminder to your friends of your thoughtfulness long after many more expensive gifts have been forgotten.

Forego the drudgery of plodding through the wet, slushy streets. Cease pushing your way through the crowds in your customary tiresome, discouraging search for something suitable, and at the same time not too costly. Try selecting your gifts while seated in a comfortable chair before the fire.

HERE ARE OUR XMAS OFFERS
Good Only for December



(1) We will send The Canadian Horticulturist to your friend for a year and send you any of our $1.00 horticultural books for only $1.50.

(2) We will renew your subscription for two years and send The Canadian Horticulturist to your friend for one year for only $2.00.

(3) We will renew your subscription for one year and send The Canadian Horticulturist to two of your friends for one year each for only $2.00.

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Extra subscriptions over three at 65c each. This offer for December only. If your friend lives in the United States, 25c postage must be added to the above rates.

Just cut off the attached coupon, mark which offer you are using and send in the names and addresses of your friends together with a money order for the necessary amount. We will then enter the names on our mailing list, and send to each of your friends named a beautiful Christmas card bearing your Greetings and the information that you have asked us to send them a year's subscription to The Canadian Horticulturist. This will be sent to reach your friend Xmas morning.

Do your Christmas shopping early. Address all orders to

The Canadian Horticulturist
PETERBORO, ONT.

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Offer.	Name. Address.
No. 1.	....
No. 2.	.....
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Mark X opposite the offer you wish to take up.	Also renew my subscription for.....years ..... sender. .....address.

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The Commission firms undernoted wish consignments of fruit and general produce. They will be pleased to have you write them for information, shipping stamps, etc., if you have fruit or vegetables for sale.

WANTED

Consignments of Cherries, Tomatoes, Peaches, Grapes and all kinds of fruit; also carlot apples. Centrally located, convenient to all car tracks. Commission 10%.

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Car-load Shippers of Potatoes
SEND FOR QUOTATIONS.

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Wholesale Fruit and Produce

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We give personal, consistent and reliable attention to every consignment. Shipping stamps furnished on request.

A Good Firm on Two Good Markets

TOM ADAMS AND BROS.

Fruit Merchants

BRISTOL

TOM ADAMS AND BROS.

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SWANSEA

Head Office:—BRISTOL

Get in touch with them to-day if you want top prices for your produce.

The Oldest Commission House in Toronto

McWILLIAMS & EVERIST

Send your Consignments.

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Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign, or single letter to count as one word, minimum cost 30c., strictly cash in advance.

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ALL KINDS OF FARMS—Fruit farms a specialty. Write for Catalogue. W. B. Calder, Grimsby.

WANTED to hear from owner of good farm for sale. Northwestern Business Agency, Minneapolis, Minn.

SEEDS, BULBS AND PLANTS.

BULBS—Of all descriptions. Write for prices. C. Keur & Sons, Hillegom, Holland. New York Branch, 8-10 Bridge Street.

BEES AND BEE SUPPLIES.

1,000 GUMMED HONEY LABELS, two colors, any wording, for $1.30. Catalogue free. Eastern Label Co., Clintonville, Conn.

FOR SALE—117 Colonies of Italian Bees. For price apply to Jas. Martin, Hillsdale, Ont.

may have to buy back some of their own goods at an advanced price, or else import American supplies, in order to fill their contracts. The Holding Company, representing practically all the canners, is badly oversold. Opening prices the week before last were $2.15 per dozen for 2½ lb. tomatoes, as against 95c for the 3 lb. size a year ago. Contracts have already been made at about $1.35, and delivery has been made at even lower prices in some cases.

The extent to which the larger distributors demand delivery will determine the outcome for the canners. The latter are reported to be buying back their own product from wholesalers, at prices around $1.50 per dozen.

The deficiency in canned goods can be filled from the States, but only at prices that will reduce consumption so that it is likely that not more than half the deficiency will be supplied. These supplies will come chiefly from Maryland, and prices are, tomatoes, $2; peas, $1.75 to $2; beans, $1.50 to $2; corn, $1.75 per dozen.

A later report says: "Retail buyers are holding back in face of the extreme prices, but it is said that canners have actually been buying back tomatoes from jobbers at $2.25 for 3-lb. tins, and $2.15 for 2½ lb. tins."

It has been estimated that the amount of fruit shipped from the Niagara Peninsula this season will come to 93,000 tons, valued at $5,500,000. Peaches have the greatest acreage, pears the lowest. Plums have decreased in acreage 48 per cent. in the last 6 years, and cherries have increased 21 per cent. The increase in the acreage of peaches since 1910 is about 20 per cent.

The Beamsville Preserving Company finished the season's work on Nov. 18th The pack is fully up to other years in all except tomatoes. The shortage of potatoes and other vegetables is agitating the people in the cities, and they are blaming the market-gardeners and farmers for the high prices. Recent prices on Hamilton market were: Potatoes per basket, 45c to 50c, per bag, $2.25 to $2.50; carrots and beets per basket, 40c to 65c; onions, 75c; parsnips, 45c to 50c; turnips, 30c; celery, per doz., 40c to 75c; lettuce, 50c to 70c; cabbage, 75c to $1.00; cauliflower, each, 15c to 25c; pumpkins and squash, each, 10c to 15c; pears are 25c to 40c per basket, and apples, 35c to 70c.

1916 Index for The Canadian Horticulturist and The Canadian Horticulturist and Beekeeper Volume XXXIX.

Beekeeping—
- A Method of Recording Color Variations 7
- Outdoor Wintering 8
- Losses from Maple Honey 9, 32
- Quebec Beekeepers' Annual Convention 10
- Poison Baits in their Relation to Bees 11
- Useful Appliances for Extracting Honey 31
- Honey Sources of Northern Ontario.. 34
- British Columbia Notes..11, 35, 99, 128, 155
- Notes from Manitoba 10-35
- Spring Management in the North 63
- Cleaning up European Foul Brood.... 64
- How Victoria County Bees are Wintered 65
- March in the Apiary 66
- Manitoba Beekeepers' Convention ... 66
- Co-operative Experiments in Apiculture in 1915 67
- Queen Records 95
- A Tale of Woe 95
- Spring Management 96, 97, 127
- Spring Dwindling 97
- Swarm Prevention and Control 98
- Some Suggestions for the Manufacturers 98
- New Brunswick Beekeepers Progressing 99
- Feeding the Bees 125
- Sweet Clover Condemned 125
- Out Door Wintering in Manitoba..... 127
- Legislation for Beekeepers 128
- A Beekeeper's Retrospect of 1915... 151
- A Successful Wintering Experiment.. 153
- Rearing of Good Queens 154
- Honey from Blueberries 173
- The Experiences of the Farmer Beekeeper 174
- Bee Notes from the Kootenays.... 177, 275
- Packages of Bees—Their Use and Abuse 197
- Swarm Control 199
- Notes for August 200
- Beekeepers' Supplies and Methods... 201
- Wintering Problems Discussed 221
- Random Observations 222
- Selling the Honey Crop 224
- White Honey Crop Report 225
- Freeing Bees from Supers 245
- Methods of Wintering Bees 245
- Experiences in Cellar Wintering.... 247
- The Honey Resources of Canada.... 248
- The Honey Crop and Market Prospects 248
- Don'ts for Beekeepers 249
- The Marketing of Honey 271
- Wintering the Bees 272
- An Efficient Beekeeper 273
- Comb Building 274
- Ontario Beekeepers' Convention 275
- A Day with Beekeepers in Victoria County 293
- The Honey Season of 1916 294
- Efficiency in Beekeeping 295
- Wax Extractors 296
- Beekeeping in Manitoba 296

Conventions, Reports of—
- Quebec Fruit Growers Hold Profitable Meetings 12
- Business Problems Discussed by Ontario Fruit Growers 36
- Manitoba Horticulture and Forestry Association 84, 43
- Niagara Peninsula Fruit Growers.... 81
- British Columbia Fruit Growers..... 210
- Canadian Horticultural Association.. 225
- Ontario Vegetable Growers' Association 280
- Ontario Horticultural Convention.... 297
- Ontario Vegetable Growers' Association 298

Editorials—
- Theories Upset 10
- City Beautification 10
- A Remedy Required 10
- Dust Sprays 34
- The Growers and the Canners 34
- The Duty on Apples 66
- Town Planning and Practice 66
- The Collapse of Co-operation 66
- Home Markets Shrinking 98
- Protect the Plants 98
- Patriotism and Production 99
- Home Market Conditions 128
- Mother's Day 128
- The War's Influence Appearing 128
- Marketing Agencies 154
- Checking Transportation Interests ... 154
- Protecting Bird Life 154
- A Creditable Effort 154
- Trade Marking Fruit 176
- The Late Dr. James 176
- Weeds on City Lots 176
- Economic Issues 200
- Embellishing Buildings 200
- Beautifying Civic Playgrounds 201
- Government Interference 224
- Street Boulevards 224
- A Venture in Cooperation 248
- Forming New Societies 248
- Western Farmers Retaliate 248
- The Home Beautiful 249
- The Paper Situation 274
- Orchard Diseases 274
- Bird Protection 275
- Northern Grown Potatoes 296
- The Town Beautiful 296

Fertilizers—
- Orchard 3
- A Fruit Farm Where Commercial Fertilizers Have Paid 5
- Prefers Commercial 6
- Principles Made Plain 8

Flowers—
- Floral Suggestions for January 7
- The Gloxinia 30
- Notes on New Plants and Flowers..31, 65
- Rubber Plants 32
- Dwarf Chrysanthemums 60
- The Development and Propagation of the Lilac 61
- Annual Flowers Worthy of Favor ... 95
- Annual Flowers in Association With Other Plants 123
- The Control of Enemies of the Rose.. 149
- Hardy Perennial Borders 152
- Summer Care of Roses 172
- Summer Preparation for Winter 196
- The Night Blooming Cactus 199
- Plan Now for Paeonies Next Year 221
- How and When to Plant Bulbs 223
- Are There Barren Paeonies 244
- Do Not Forget the Lilies 245
- Hints on Transplanting 246
- Simply Facts about the Growing of Bulbs 247
- The House Culture of Bulbs 268
- Fall Planting and Protection of Roses 269
- Rearranging the Flower Borders..... 272
- A Chat About Roses 28
- Asters and Their Requirements 90
- Plant Paeonies in September 220
- What Bulbs to Grow 243
- Flowers that Brighten the Home..... 291
- Vines and Their Uses 293
- Decorative Perennials for the Autumn Garden 290

Fruit—
- Strawberry Crates for Ontario 1
- Notes on the Season's Fruit Trade 13
- A Nova Scotia Grower's Methods 26
- The Grading of Basket Fruits 37
- Seventeen Years' Experience in Peach Growing 53
- Problems of the Fruit Grower 55
- Pruning Trees to Promote Production 57
- Basket Packages for 69
- Packages for Tender 109
- Factors of Success in Strawberry Growing 117
- How Blossoms are Fertilized 119
- Essentials of Success in 120
- Export Apple Trade 129
- The Apple Situation at the Cast 134
- Some Phases of Packing and Marketing Basket 141
- Best Packages for Tender Fruit Shipments 145
- Nova Scotia's Production of Apples.. 163
- Marketing Tender Fruits 167
- Culture of Small Fruits 169
- Bees Not Injurious to 169
- The Outlook for 178
- The Fruit Trade at Montreal 179
- Inspection in the East 182
- The McIntosh Apple 185
- Cranberry Culture in Nova Scotia 191
- Strawberry Growing in Quebec 206
- No British Embargo on 209
- Quince as an Ontario Fruit 212
- Standardization of Fruit Packages.. 213
- Packing the 1916 Apple Crop 215
- Raspberry Packing for the West 216
- Apple Orcharding Should be a Main Line 217
- What Quebec Might do in Fruit Production 219
- Precooled Shipments of Strawberries. 226
- Small Fruit Packages and Packing.... 237
- Points to Watch Ordering Nursery Stock 239
- The Merits of the Duchess Apple 240
- Methods of a Large Apple Grower.... 241
- Canadian vs. the American Apple Standard Box 242
- Tests of Pears in Eastern Quebec.... 243
- Okanagan Valley Notes 252
- The Triumphs of Efficient Methods.. 261
- The Expeditious Handling of Basket Fruit 263
- Pointers by an Experienced Pear Grower 264
- Lessons From the 1916 Apple Season. 265
- Dealers' Views on Standard Packages. 266
- Mulching Strawberries 273

Advertising Apples on an Ambitious Scale 276
Manitoba Fruit for Hybridization 281
Lessons from Failures 288

Gardens—
Informal Planting of Home Grounds 33, 64
Planning the Garden of Satisfaction.. 93
Early Work in the Flower 94
How I Made My Garden Pay..... 96
Suggestions for May 125
A Velvety Lawn Adds Beauty to the.. 147
A Garden in The Critical Month of June 151
Early Season Work in the 153
Have a Pergela in Your 170
Cultivating, Watering and Succession for the Home 171
The Garden and Grounds of Clydagh House 173
Suggestions for July 174
The Vegetable Garden in July 175
The Garden of a Summer Cottager .. 195
Suggestions for August 197
September Activities in the Home.... 222
Making the Garden Live Longer..... 270
Planning the Home Lot 59
Plan of a Home Vegetable Garden 90
Preparations for Planting 121
Luxuries for the Home Garden 122
The Grounds and Garden of Craigleigh 219
October Preparations and Precautions for Winter 243

Greenhouse—
Insect Pests in the Amateur's 5
The Pleasures of a Home-Made..... 194

Horticultural Societies—
II 35, 67, 99, 129, 155, 177, 225, 249, 275

Insects and Diseases—
The Fruit Tree Leaf-Roller 21
Control of Fruit Insects, With Special Reference to Nova Scotia 25
Sucking Insects of the Apple 59
Two Fruit Pests to Watch for 118
Leaf Curl Disease of Peach 166
Insect Pests in Manitoba 205
Diseases of Potatoes 231
The Apple Scab Problem 285
The Fruit Tree Leaf Roller in New York State 287
Fighting the Potato Beetle 290
Fighting the Pests of House Plants.. 292

Irrigation—
Results from the Skinner System.... 143

Markets—
Marketing Garden Produce 17
Canadian Apples in South Africa 19
A Forward Step in Cooperative Marketing 250

Miscellaneous—
Niagara Notes .....
....viii., vii., 48, 9, viii., 138, 157, 181
Better Net Returns for Local Associations 68
How to Prevent Cooperation 79
Annapolis Valley Notes ..x., 184, 256. 281
Success and Failure in Cold Storage.. 100
Better Net Returns 104
Cooperation in the Niagara District.. 130
British Columbia Fruit Growers Helped 156
Reasons for Cooperative Failures.... 159
Planning Cities to Make them Beautiful 177
Cooperative Methods Not a Cure-All. 189
Notes on the Montreal Fruit Trade... 203

Orchard—
The Right and Wrong Way to Care For An 27
Fertilization 87
Lime in the 119
Methods of Cultivation 121

Plants—
The Care of House 29
Spring Work With House 124
Pointers in Potting 127
Winter Protection of Tender 271
Care and Culture of House Plants.... 6

Poultry—
..... 17 46, 80, 106, 140, v., 213, 300

Seeds—
Starting Seeds in the Hotbed 63
Conditions of the Seed Market..... 178

Shrubs—
Pruning Shrubs 60

Spraying—
Orchard Sprays 23
Poison Sprays and Poison Baits..... 28
Methods in Nova Scotia 89
Dusting Fruit Trees 118
Spraying at Different Dates 144
Dust Sprayer Tested in Mr. Gibson's Orchard 166
Tests of Dust Sprays 178
Sulphur Dusting for Apple Scab in Nova Scotia 220

Vegetables—
A Northern Ontario Vegetable Garden 9
Vegetable Growers Have Losses..... 13
The Production from Seed 54
Growing Vegetables for a Family of Seven 91
Sowing 97
Asparagus Culture 207
Field Crop Competition 258
Onions Along Lake Erie 267
Profitable Vegetable Cropping 289
Successful Vegetable Growing 290
The Cellar Vegetable Garden 295

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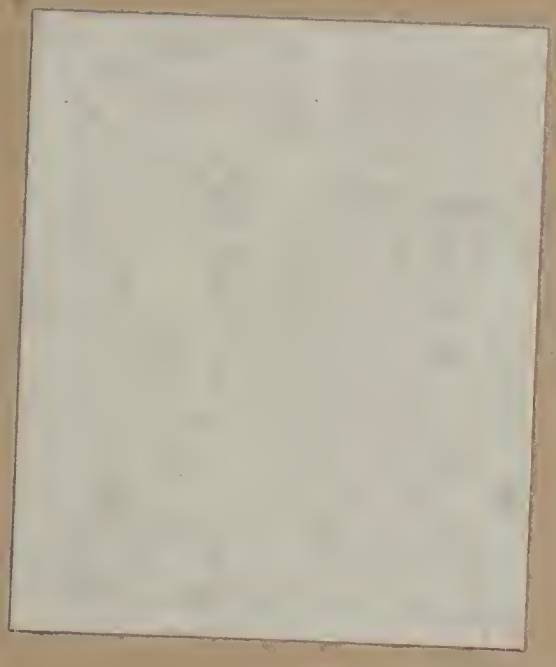
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